**BOA Meeting Agenda**
**Peculiar City Board of Aldermen**
**Worksession Meeting and Public Hearing**
**City Hall – 250 S. Main St**
**Monday December 7, 2015 6:30 p.m.**

***Notice is hereby given that the Board of Aldermen of the City of Peculiar will hold a regularly scheduled meeting on Monday, December 7, 2015 at 6:30 pm, in the Council Chambers at 250 S. Main St. Representatives of the news media may obtain copies of this notice by contacting the City Clerk at City Hall, 250 S. Main St Peculiar, MO 64078 or by calling 816-779-2221. All proposed Ordinances and Resolutions will be available for viewing prior to the meeting in the Council Chambers.***

**1. Call to Order**

**2. Pledge of Allegiance**

**3. Roll Call**

**4. City Clerk – Read the Board of Alderman Statement**

**5. Consent Agenda –**

**A. Approval of the Draft Minutes of October 19, 2015 BOA Meeting.**

**B. Approval of the Draft Minutes of November 2, 2015 Worksession Meeting.**

**6. New Business –**

**Public Comment – Merle's Pub & Grill, Pam Gresham**

**A. Resolution 2015-58 A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI APPROVING CLASS D & E LIQUOR LICENSES FOR MERLE'S PUB & GRILL.**

**B. Resolution 2015-59 – A RESOLUTION TO ACCEPT THE CERTIFICATION OF ELECTION RESULTS BY THE COUNTY CLERK FOR THE SPECIAL ELECTION HELD NOVEMBER 3, 2015.**

**C. Bill No. 2015-28 - AN ORDINANCE OF THE CITY OF PECULIAR, MISSOURI ESTABLISHING SECTION 135.090 OF PECULIAR MUNICIPAL CODE TITLED "MOTOR FUEL FEE."**
**1st Reading**

**D. Bill No. 2015-29 - AN ORDINANCE OF THE CITY OF PECULIAR, MISSOURI CALLING FOR A GENERAL MUNICIPAL ELECTION ON APRIL 5, 2016 AND ESTABLISHING FILING DATES FOR SAID ELECTION.**
**1st Reading & 2nd Reading**

**E. Resolution 2015-60 - A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI APPROVING THE CITY OF PECULIAR TO ASSUME THE COST OF STREET LIGHT ELECTRICITY AND MAINTENANCE FOR THE TWIN OAKS SUBDIVISION.**

**F. Resolution 2015-61 – A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI, APPROVING AND ACCEPTING THE MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION TRAFFIC ENGINEERING ASSISTANCE PROGRAM AGREEMENT (CASS COUNTY), MISSOURI, OF THE FINAL ENGINEERING STUDY OF THE ROAD SEGMENT ANALYSIS OF ROUTE C BETWEEN PECULIAR DRIVE AND SCHUG AVENUE.**

**G. Resolution 2015-62 – A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI, APPROVING AND ACCEPTING THE BUSINESS PLAN FOR MUNICIPAL BROADBAND AND ENTERPRISE OF THE CITY OF PECULIAR, MISSOURI PREPARED BY UNIVERSAL ASSET MANAGEMENT, LLC.**

**H. Resolution 2015-63 - A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI AUTHORIZING THE MAYOR TO EXECUTE A CONTRACT WITH TWC CONSTRUCTION FOR INSTALLATION OF THE PECULIAR MONUMENT SIGN LIGHT FIXTURES ALONG N. MAIN STREET IN BRADLEY'S CROSSING LOT 6B FOR THE CITY OF PECULIAR, MO**

**7. City Administrator Report**

**8. Aldermen Concerns**

**9. Alderman Directives**

**10. Executive Session –**

**The Mayor Holly Stark has requested a 30-minute Executive Session, per RSMo. 610.021(13)**

**11. Adjournment**

**Board of Aldermen Regular Meeting Minutes**
**Monday October 19, 2015**

A regular meeting and public hearing of the Board of Aldermen of the City of Peculiar, Missouri, was held in the Council Chambers in City Hall at 6:30 p.m. on Monday, October 19, 2015. Mayor Holly Stark called the meeting to order and all who were present joined in reciting the Pledge of Allegiance.

The following Aldermen responded to roll call: Kelsie McCrea, Jerry Ford, Patrick Roberts, Veronika Ray, Matt Hammack and Donald Turner.

City Staff present for the meeting were City Administrator Brad Ratliff, City Attorney Reid Holbrook, City Planner Cliff McDonald, Chief of Police Harry Gurin, City Engineer Carl Brooks, Business Office Manager Trudy Prickett and City Clerk Janet Burlingame.

**City Clerk Janet Burlingame recited the Board of Alderman Statement.**

**Consent Agenda**

**A. Approval of the Draft Minutes of September 21, 2015 BOA Meeting.**

**B. Approval of the Draft Minutes of October 5, 2015 Worksession Meeting.**

Alderman Ford moved to accept the consent agenda with an amendment to change Draft Minutes of October 5, 2015 regarding Unfinished Business B, Alderman Hammack was present during the meeting and voted "Aye" and Alderman McCrea should be marked absent. Seconded by Alderman Turner, consent agenda was approved by a 6-0 voice vote.

| | | | |
|---|---|---|---|
| Alderman McCrea | Aye | Alderman Ray | Aye |
| Alderman Ford | Aye | Alderman Hammack | Aye |
| Alderman Roberts | Aye | Alderman Turner | Aye |

**Public Comment – Cottage Housing Development Concept presented by Chris Chiodini.**

Cottage Housing Developer Chris Chiodini addressed the Board of Alderman to present a Real Estate Development Concept. This development concept has been done very successfully in other parts of the country, specifically in-and-around the Seattle area. Mr. Chiodini stated this type of project is usually developed on an un-developed infill lot, less than one acre in size and is very close to the downtown area of the city. Mr. Chiodini gave further explanation on key issues and benefits in creating a Cottage Housing Development. Discussion ensued amongst the Mayor and Board of Aldermen.

**Unfinished Business –**

**A. Bill No. 2015-27 - AN ORDINANCE AMENDING CHAPTER 500: GENERAL PROVISIONS OF THE PECULIAR MUNICIPAL CODE TO ESTABLISH A NEW CHAPTER 500: BUILDING AND CONSTRUCTION CODE OF THE CITY OF PECULIAR.**

City Planner Cliff McDonald explained Bill No. 2015-27 1st Reading was unanimously approved by the Board of Alderman, there have been no changes and no one opposed the 1st Reading. Alderman Ford and Alderman Hammack asked for clarification between Chapter 400 and Chapter 500. Mr. McDonald stated this is strictly the Building & Construction Codes. All that has been done is amending Chapter 500 because of the way it was formatted to allow for an administrative section and placement of the ICC Building Code as well as the property maintenance code. Discussion ensued amongst Board Members and City Staff.

Alderman Roberts made a motion to have the second reading of Bill No. 2015-27 by title only. The motion was seconded by Alderman Ford and was approved by a 6-0 voice vote. Alderman Roberts made a motion to accept the second reading of Bill No. 2015-27 and place on final passage as ordinance number 10192015. The motion was seconded by Alderman Ford and was accepted by a 6-0 roll call vote.

| | | | |
|---|---|---|---|
| Alderman Ford | Aye | Alderman Ray | Aye |
| Alderman McCrea | Aye | Alderman Roberts | Aye |
| Alderman Hammack | Aye | Alderman Turner | Aye |

**Topic for Discussion –**

**A. Marketing Video Review**

City Administrator Brad Ratliff gave a brief overview of the marketing video being presented to the Mayor and Board of Alderman.

**City Administrator Report -**

- **FarMart 2015**
- **Mayor's Christmas Lighting**

- **April Annexation**
- **Prescription Drug Takeback**
- **Senior Citizen Safety**
- **School Road Safety**
- **Incode Project Planning**
- **Snow Plow Information**
- **Codes Department**
- **Tiger Grant VII 2015**
- **MoDot Interstate Highway 49 and 211th Street Interchange**
- **Peculiar Monument Sign Project**
- **City Wide Storm Water Improvements**
- **CIP Water Main Nos.1**
- **Broadband**
- **Parks Recreational Programs**

**Aldermen Concerns -**

Alderman McCrea explained a call she received concerning the right-of-way at 66 Acre Park needing to be mowed. There are additional concerns at 227th Street.

**Aldermen Directives -**

Received Public Comment regarding Cottage Housing Development
Chapter 500 Ordinance approved and will be updated
Marketing Review presented to the Board
Alderman McCrea's concerns at 66 Acre Park & 227th Street

**Adjournment –**

On a motion from Alderman Ford, second from Alderman Turner, the meeting was adjourned at 7:23 pm with a 6-0 voice vote.

Regular session minutes were taken and transcribed by Janet Burlingame, City Clerk.

_____
Janet Burlingame, City Clerk

**Board of Aldermen Regular Meeting Minutes**
**Monday, November 2, 2015**

A regular work session meeting and public hearing of the Board of Aldermen of the City of Peculiar, Missouri, was held in the Council Chambers in City Hall at 6:30 p.m. on Monday, November 2, 2015. Mayor Holly Stark called the meeting to order and all who were present joined in reciting the Pledge of Allegiance.

The following Aldermen responded to roll call: Donald Turner, Matt Hammack, Kelsie McCrea, Jerry Ford and Veronika Ray. Pat Roberts was marked excused absence.

City Staff present for the meeting were City Administrator Brad Ratliff, City Attorney Reid Holbrook, City Planner Cliff McDonald, Chief of Police Harry Gurin, City Engineer Carl Brooks, Parks Director Grant Purkey and City Clerk Janet Burlingame.

**City Clerk Janet Burlingame recited the Board of Alderman Statement.**

**Mayor's Appointment – Dan Fausett to the Planning Commission**

**Resolution 2015-56 - A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI APPROVING THE APPOINTMENT OF MR. DAN FAUSETT TO THE PLANNING COMMISSION.**

Alderman Ford made a motion to adopt Resolution 2015-56. The motion was seconded by Alderman Hammack and was accepted by a 5-0 roll call vote.

| | | | |
|---|---|---|---|
| Alderman Ford | Aye | Alderman Ray | Aye |
| Alderman McCrea | Aye | Alderman Roberts | Absent |
| Alderman Hammack | Aye | Alderman Turner | Aye |

**Topic for Discussion –**

**A. Bartlett & West Presentation – Wet/Dry Basin Storm Water Improvements**

Bartlett & West Representative Todd Kempker was given the task of providing information to the Board of Aldermen regarding the wet/dry basin mitigation cost and potential engineering cost of the storm water improvements pertaining to the I-49 & Peculiar Way Interchange.

Alderman Pat Roberts was present at the meeting at 6:36 p.m.

Mr. Kempker discussed in detail a wet basin option, a dry basin option, a dry basin option that can convert to a wet basin at a later date and cost associated with the various options. Discussion ensued amongst the Board of Aldermen and Mr. Kempker. City Administrator Brad Ratliff stated that none of the options are affordable. However, we need to finalize a plan as we move forward. There needs to be a phased approach system as the Community Improvement District (CID) develops. Discussion continued to ensue amongst the Mayor, Board of Aldermen, City Staff and Mr. Kempker. The Mayor and Board of Aldermen directed Mr. Kempker to provide a cost of what a final design would be and to let Staff decide on money allotted.

**Aldermen Concerns –**

Alderman Hammack reminded all present that the Election Day is November 3rd. Alderman Ray requested gravel in construction work sites around town be swept from the pavement to better assist motorist. Alderman Ford mentioned the litter on the on & off ramps and is it possible to install signs that read "Do Not Litter"? Alderman Ford recommended that a Capitol Improvement Citizen Committee be formed and asked if the cost of the decorative street lights could be waived. Mayor Stark announced the dedication of the Veterans Memorial Plaza at the Wills Cemetery on November 8th at 2:00 p.m. City Administrator Brad Ratliff informed the Mayor and Council that the City of Peculiar did not receive the Tiger VII Grant.

**Aldermen Directives –**

Notify Dan Fausett of his appointment to the Planning & Zoning Board
Bartlett & West present a budget on design of a Wet Basin Storm Water Improvement
Remove gravel from pavement at current construction areas
Make a plan on removing litter from on & off ramps
Consider a Capitol Improvements Citizen Committee
Decorative Street Lights Resolution

**Executive Session –**

Alderman Roberts made a motion to enter into executive session pursuant to RSMo 610.021(1) beginning at 7:40 p.m. for 30 minutes. Seconded by Alderman Ford and was approved by a 6-0 roll call vote.

| | | | |
|---|---|---|---|
| Alderman Ford | Aye | Alderman Ray | Aye |
| Alderman McCrea | Aye | Alderman Roberts | Aye |

| | | | |
|---|---|---|---|
| Alderman Hammack | Aye | Alderman Turner | Aye |

Alderman Roberts made a motion to exit executive session at 7:58 p.m. and reconvene regular session. Seconded by Alderman Ford and was approved by a 6-0 roll call vote.

| | | | |
|---|---|---|---|
| Alderman Ford | Aye | Alderman Ray | Aye |
| Alderman McCrea | Aye | Alderman Roberts | Aye |
| Alderman Hammack | Aye | Alderman Turner | Aye |

Alderman Ford had an additional comment not mentioned during Aldermen Concerns. He suggested that the City is in need of a Public Information Officer to better inform and address concerns of residents. City Administrator Brad Ratliff suggested that perhaps the Marketing Group could assist in this area of concern. Discussion ensued amongst Mayor, Board of Aldermen and City Administrator.

**Adjournment -**

On a motion from Alderman Ford, seconded from Alderman Turner, the meeting was adjourned at 8:15 p.m. with a 6-0 voice vote. Regular work session minutes were taken and transcribed by Janet Burlingame, City Clerk.

_____

Janet Burlingame, City Clerk

**City Administrator**
*Brad Ratliff*

**City Clerk**
*Janet Burlingame*

**City Attorney**
*Reid F. Holbrook*

**City Engineer**
*Carl Brooks*

**Business Office**
*Trudy Prickett*

**City Planner**
*Cliff McDonald*

Municipal Offices – 250 S. Main St., Peculiar, MO 64078
Phone: 816.779.2221 Facsimile: 816.779.5213

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**AGENDA REQUEST FORM**
(Board of Aldermen)

**This form must be completed and submitted to the office of the City Clerk. Complete materials for the agenda shall be submitted no later than Wednesday at 5:00 pm, 9 business days prior to the next Board of Aldermen's meeting. If an observed holiday falls on a Thursday, materials will be accepted until 5:00 pm on Wednesday. The Board of Aldermen's Regular Meeting is to be held the Third Monday of each month.**

**Date of Request:** 11-23-15 **Scheduled Meeting Date:** 12-7-15

**Full Name of Speaker:** Pam Gresham **Organization:** Merle's Pub + Grill

**Home Address:** 12200 White Oak **City** Peculiar **State** MO **Zip** 64078

**Home Phone #:** _____ **Work Phone #:** _____ **Cell #:** 816 6822601 **Email:** ~~Pam-gresham@~~ Hotmail.com

**Resident of the City of Peculiar?** _____ **Yes** _____ **No**

**Specifics of Topic:** Request for a liq license -

**Desired Outcome:** Approval of liq lic.

**If applicable has this item been previously presented to any of the following Boards for consideration?**

| | | |
|---|---|---|
| ____ Board of Aldermen | Date Presented _____ | Outcome _____ |
| ____ Planning Commission | Date Presented _____ | Outcome _____ |
| ____ Park Board | Date Presented _____ | Outcome _____ |
| ____ Board of Adjustment | Date Presented _____ | Outcome _____ |

*****I have been made aware of the date and time of the next scheduled Board of Aldermen meeting.**

**Signature:** Pam Gresham

**Office Use Only:**

**Date request Received:** _____

**City Administrator**
*Brad Ratliff*

**City Clerk**
*Janet Burlingame*

**City Engineer**
*Carl Brooks*

**Business Office**
*Trudy Prickett*

**Chief of Police**
*Harry Gurin*

**City Planner**
*Cliff McDonald*

**City Attorney**
*Reid Holbrook*

**Parks Director**
*Grant Purkey*

Municipal Offices – 250 S. Main Street, Peculiar, MO 64078
Phone: (816)779-5212 Facsimile: (816)779-1004

**To:** **Board of Aldermen**

**From:** **Janet Burlingame**

**Date:** **December 3, 2015**

**Re:** *Resolution 2015-58 approval of Class D & E Liquor License for Merle's Pub & Grill.*

## GENERAL INFORMATION

**Applicant:** John Feuerborn

**Status of Applicant:** **N/A**

**Requested Actions:** Approval of the Resolution.

**Date of Application:** November 23, 2015

**Purpose:** The purpose is to consider adopting the proposed Resolution.

**Property Location (if applicable):** **N/A**

## PROPOSAL

John Feuerborn is the new owner of Merle's Pub & Grill. He would like to open a restaurant but needs to get his Liquor Licenses to do so. Mr. Feuerborn has met all requirements of City Code and submitted all forms of documentation necessary to apply for his Licenses. He is excited to do business in Peculiar. Per City Code if the Board approves the Resolution Mr. Feuerborn will submit a copy of the Resolution to Missouri Division of Alcohol and Tobacco Control as the City's letter of recommendation for him to get his State liquor License. The Resolution will approve the Liquor License with an expiration date of December 31st, 2016.

## PREVIOUS ACTIONS

None.

## KEY ISSUES

## STAFF COMMENTS AND SUGGESTIONS

Staff has performed the required background check through the Chief of Police and Missouri State Highway Patrol and there is nothing barring him from receiving the license.

## STAFF RECOMMENDATION

Staff recommends approval of the proposed Resolutions.

## ATTACHMENTS

Recommendation of application and Resolution.

# Peculiar, Missouri POLICE

Harry J. Gurin
Chief of Police

December 1, 2015

Janet Burlingame, City Clerk

I have received and reviewed the City of Peculiar, Liquor License, application for Merle's, Restaurant/Bar, 21900 Branic DR., Peculiar, Missouri.

John J. Feuerborn, applicant, has submitted the appropriate Missouri Highway Patrol criminal history record. The criminal history report indicates no record in the criminal justice system.

It is my recommendation that the application, based on no criminal record, be allowed to proceed in the application process.

Respectfully,

Harry J. Gurin
Chief of Police

**RESOLUTION 2015-58**

**A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI APPROVING CLASS D & E LIQUOR LICENSES FOR MERLE'S PUB & GRILL.**

**WHEREAS,** John Feuerborn has submitted an application for Class D & E Liquor Licenses; and

**WHEREAS,** the Board of Aldermen have reviewed the request John Feuerborn, and a background check has been completed; and

**WHEREAS,** said license, upon approval shall be granted to the applicant for a term to expire with the thirty-first (31st) day of December 2016, unless such license be revoked or suspended for cause before the expiration of such time

**NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI**

**Section 1. RESOLVED,** the City of Peculiar is authorized by Chapter 600: Alcoholic Beverages, of the City of Peculiar Municipal Code, to approve liquor licenses for businesses and organizations in good standing.

**Section 2. RESOLVED,** the Board of Aldermen hereby approves the request of John Feuerborn who has submitted application for Class D & E Liquor Licenses for Merle's Pub & Grill contingent upon receipt of the approved Missouri Division of Alcohol and Tobacco Control license.

**Section 3.** ***Effective Date.*** The effective date of this resolution shall be the _____ day of _____, 2015.

**THIS RESOLUTION WAS ADOPTED BY THE FOLLOWING ROLL CALL VOTE ON THE _____ DAY OF _____, 2015.**

| | | | |
|---|---|---|---|
| Alderman Ford | _____ | Alderman Ray | _____ |
| Alderman McCrea | _____ | Alderman Roberts | _____ |
| Alderman Hammack | _____ | Alderman Turner | _____ |

APPROVED:

_____
Holly Stark, Mayor

ATTEST:

_____
Janet Burlingame, City Clerk

**City Administrator**
*Brad Ratliff*

**City Clerk**
*Janet Burlingame*

**City Engineer**
*Carl Brooks*

**Chief of Police**
*Harry Gurin*

**City Planner**
*Cliff McDonald*

**City Attorney**
*Reid Holbrook*

**Business Office**
*Trudy Prickett*

**Municipal Offices – 250 S. Main Street, Peculiar, MO 64078**
**Phone: (816)779-5212 Facsimile: (816)779-1004**

**Parks Director**
*Grant Purkey*

To: Board of Aldermen

From: Janet Burlingame

Date: December 3, 2015

Re: Certification of Election Results

GENERAL INFORMATION

Applicant: Staff

Status of Applicant: N/A

Requested Actions: Pass Resolution accepting results

Date of Application: December 3, 2015

Property Location (if applicable):

PROPOSAL
Accept the election results for the Motor Fuel Fee.

PREVIOUS ACTIONS
No previous action

KEY ISSUES
This resolution will accept the County's Election results as true.

STAFF COMMENTS AND SUGGESTIONS
None

STAFF RECOMMENDATION
Approval of the Resolution.

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STAFF CONTACT:
Janet Burlingame

# Cass County
## Election Authority

102 East Wall • Harrisonville, Missouri 64701
816/380-8102 • Fax: 816/380-8101

**MICHAEL VINCK**
E-MAIL: Mikev@casscounty.com
816/380-8102


To: City of Peculiar
ATTN: City Clerk

The following is an Official Certificate of Election Results of the Municipal Election held in Cass County, Missouri, on November 03, 2015.

We hereby certify that the:

PECULIAR MOTOR FUEL FEE

| | Total | |
|---|---|---|
| Number of Precincts | 2 | |
| Precincts Reporting | 2 | 100.0 % |
| Total Votes | 320 | |
| YES | 224 | 70.00% |
| NO | 96 | 30.00% |

CERTIFICATE OF ELECTION RESULTS

I, Michael J. Vinck, County Clerk/Election Authority of Cass County, Missouri, do hereby certify that the foregoing is a full accurate return of all votes cast at the above polling places for all CANDIDATES and FOR and AGAINST all propositions at said election as certified to me by the duly qualified and acting judges of said election.

Michael J. Vinck

Michael J. Vinck
County Clerk/Election Authority
Cass County, Missouri

**Resolution No. 2015-59**

**A RESOLUTION TO ACCEPT THE CERTIFICATION OF ELECTION RESULTS BY THE COUNTY CLERK FOR THE SPECIAL ELECTION HELD NOVEMBER 3, 2015**

**WHEREAS,** the City of Peculiar held a Special Election of November 3, 2015, and,

**WHEREAS,** Mike Vinck, County Clerk/Election Authority of Cass County, Missouri has certified the results of said election, and

**WHEREAS**, A copy of said certification of results are hereby attached,

**NOW THEREFORE, BE IT RESOLVED BY THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI:**

Section 1 – The Board of Aldermen accept the Certification of Election Results.

**BE IT REMEMBERED THE PRECEDING RESOLUTION WAS ADOPTED UPON ITS READING THIS _____ DAY OF _____, 2015, BY THE FOLLOWING VOTE**:

| | | | |
|---|---|---|---|
| Alderman Hammack | ____ | Alderman Ray | ____ |
| Alderman Ford | ____ | Alderman Roberts | ____ |
| Alderman McCrea | ____ | Alderman Turner | ____ |

Approved: Attest:

_____ _____

Holly J. Stark, Mayor Janet Burlingame, City Clerk

**City Administrator**
*Brad Ratliff*

**City Clerk**
*Janet Burlingame*

**City Engineer**
*Carl Brooks*

**Business Office**
*Trudy Prickett*

**Chief of Police**
*Harry Gurin*

**City Planner**
*Cliff McDonald*

**City Attorney**
*Reid Holbrook*

**Parks Director**
*Grant Purkey*

Municipal Offices – 250 S. Main Street, Peculiar, MO 64078
Phone: (816)779-5212 Facsimile: (816)779-1004

**To:** **Board of Aldermen**

**From:** Nick Jacobs, Public Works Manager

**Date:** December 3, 2015

**Re:** Motor Fuel Fee Bill

## GENERAL INFORMATION

**Applicant:** Staff

**Status of Applicant:** N/A

**Requested Actions:** **Consider proposed Bill for 1st reading.**

**Date of Application:** December 3, 2015

**Purpose:** Establish a means to assess and collect the newly passed $0.01 Motor Fuel Fee.

**Property Location (if applicable):** N/A

## PROPOSAL

On November 3rd 2015 the voters approved the $0.01 Motor Fuel Fee with a 70% yes vote. This meets the required supermajority needed by Article 4 section 30a of the Missouri Constitution. The proposed Ordinance will set forth the means to assess and collect the new fee as well as what the monies collected can be used for. The attached Ordinance is almost a carbon copy of the one Matthews Missouri adopted to assess their Fuel Tax. If passed this ordinance will force the fueling stations to begin assessing and collecting the Motor Fuel Fee January 1st, 2016.

## PREVIOUS ACTIONS

None.

## KEY ISSUES

Establish a means to begin collecting the Motor Fuel Fee.

## STAFF COMMENTS AND SUGGESTIONS

None at this time.

## STAFF RECOMMENDATION

Staff recommends approval

## ATTACHMENTS

Bill 2015-28

**BILL NO. 2015-28**
**ORDINANCE NO. _____**

**AN ORDINANCE OF THE CITY OF PECULIAR, MISSOURI ESTABLISHING SECTION 135.090 OF PECULIAR MUNICIPAL CODE TITLED "MOTOR FUEL FEE."**

**WHEREAS**, section 94.270 of the Rev. Stat. Mo., as amended, authorizes the imposition of a license on gasoline filling stations; and

**WHEREAS,** Article IV, section 30(a) of the Missouri Constitution provides that a city may impose a fee measured by or with respect to the importation, receipt, manufacture, storage, transportation, sale or use, of fuel used for propelling motor vehicles if said fee is approved by a vote of the people of the city by a two-thirds majority; and

**WHEREAS**, the Board of Aldermen of the City submitted for consideration of the voters of the City the question of imposing a motor fuel fee in the amount not to exceed one cent ($.01) per gallon based on the gallons of motor vehicle fuel sold, said fee to be paid by gasoline filling stations selling diesel fuel, gasoline, and/or blended fuels; and

**WHEREAS,** on November 3, 2015, the people of the City voted and approved the imposition of a motor fuel fee in an amount not to exceed one cent ($.01) per gallon based on the gallons of motor vehicle fuel sold, said fee to be paid by gasoline filling stations selling diesel fuel, gasoline, and/or blended fuels by more than the requisite two-thirds majority.

**NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI AS FOLLOWS**:

**SECTION I. Definitions and rules of construction.**

Terms used in this article shall have the meanings ascribed to them in this section and shall be construed as indicated in this section:

*Gasoline filling station* means any retail establishment where motor vehicle fuel is sold.

*Motor vehicle fuel* means diesel, gasoline and/or blended fuels.

*Person* means every individual, partnership, corporation, limited liability, or unincorporated association.

**SECTION II. Levy of fee.**

Starting the 1st of January 2016, there is hereby levied a motor fuel fee on gasoline filling stations in an amount equal to one cent ($.01) per gallon for every gallon of motor vehicle fuel sold. This fee shall be in addition to all other fees which are applicable to gasoline filling stations, but shall not apply to motor vehicle fuel sold to

individuals or entities showing proof of their exemption from Missouri or federal fuel taxes.

**SECTION III. Establishment of the street improvement fund.**

There is hereby established a street improvement fund. All fees collected pursuant to this article shall be deposited to the credit of this fund.

**SECTION IV. Use of fund.**

The street improvement fund shall be used exclusively for construction, reconstruction, maintenance, and repair of roads and or streets.

**SECTION V. License; payment of fee.**

No person shall operate a gasoline filling station without a current license obtained pursuant to the terms of this article. Application for such license shall be made to the City Clerk on forms prescribed by him/her. License issued under this article shall be on a calendar year basis. Applications for license renewals shall be filed in December of each year. The fee due under this article shall be paid to the City Clerk monthly and shall be payable on or before the twentieth day of each month for the fee due for the preceding month.

**SECTION VI. Reports required.**

Every person engaged in the business of operating a gasoline filling station shall file with the City Clerk on forms prescribed by him/her, giving such information as may be necessary to determine the amounts to which the fee shall apply for the monthly period, to be submitted with monthly payments.

**SECTION VII. Examination of books, records.**

The City Clerk or his/her authorized representative shall have the right at all reasonable times during business hours to make such examination and inspection of the books and records of the licensee as may be necessary to determine the correctness and/or accuracy of the reports required by this article.

**SECTION VIII. Penalties for nonpayment.**

For each month, or part thereof, any tax provided for under this article remains unpaid after the same shall be due and payable, there shall be added to such fee as a penalty, ten (10) percent of the amount of such fee for the first month or part thereof the same is unpaid, and for each and every month thereafter two (2) percent of the amount of such fee shall be added until the same is fully paid. In no case shall the total penalty exceed thirty (30) percent of the fee. In addition to the penalties provided herein, any

person subject to the provisions of this article who fails to obtain a license, file a statement or pay the fee or files a false or a fraudulent statement, required by this article or within the time required by this article shall, upon conviction thereof, shall be punished by a fine not exceeding five hundred dollars ($500.00).

**SECTION IX:** The effective date of this ordinance shall be _____.

**First Reading: _____** **Second Reading: _____**

**BE IT REMEMBERED THE PRECEDING ORDINANCE WAS ADOPTED ON ITS SECOND READING THIS _____ DAY OF _____, 2015, BY THE FOLLOWING VOTE:**

| | | | |
|---|---|---|---|
| **Alderman Hammack** | _____ | **Alderman Ray** | _____ |
| **Alderman Ford** | _____ | **Alderman Roberts** | _____ |
| **Alderman McCrea** | _____ | **Alderman Turner** | _____ |

**Approved:** **Attest:**

_____ _____

**Holly J. Stark, Mayor** **Janet Burlingame, City Clerk**

**City Administrator**
*Brad Ratliff*

**City Clerk**
*Janet Burlingame*

**City Engineer**
*Carl Brooks*

**Business Office**
*Trudy Prickett*

**Chief of Police**
*Harry Gurin*

**City Planner**
*Cliff McDonald*

**City Attorney**
*Reid Holbrook*

**Parks Director**
*Grant Purkey*

Municipal Offices – 250 S. Main Street, Peculiar, MO 64078
Phone: (816)779-5212 Facsimile: (816)779-1004

**To:** Board of Alderman
**From:** Janet Burlingame
**Date:** December 3, 2015
**Re:** General Municipal Election April 5, 2016

## GENERAL INFORMATION

**Applicant:** Janet Burlingame
**Status of Applicant:** City Clerk
**Requested Actions:** Passage of Bill #2015-29 Calling for a General Municipal Election
**Date of Application:**
**Purpose:** Approve the Request for a General Municipal Election and establish filing dates for said election.
**Property Location (if applicable):**

## PROPOSAL

Approve Bill No. 2015-29

## PREVIOUS ACTIONS

None

## KEY ISSUES

The Mayor and (3) Alderman terms will expire in April, 2016. One from Ward #1, one from Ward #2 and one from Ward #3. An ordinance is required to hold a General Municipal Election for the purpose of filling these terms.

## STAFF COMMENTS AND SUGGESTIONS

A General Municipal Election will be required on April 5, 2016 for the purpose of filling the Mayor and 3 Aldermen terms that will expire in April, 2016. The filing and closing dates have been determined by the Missouri Secretary of State's office.

## STAFF RECOMMENDATION

Approval of first reading of Bill #2015-29 calling for a General Municipal Election on April 5, 2016 for the purpose of electing, the Mayor for a 2-year term, one Alderman from Ward #1 for a 2-year term, one Alderman from Ward #2 for a 2-year term, and one Alderman from Ward #3 for a 2-year term. Also establish the filing dates for said election.

## ATTACHMENTS

Bill #2015-29

## PUBLIC NOTICE
## City of Peculiar, Missouri

Filing for the annual General Municipal Election, Tuesday, April 5, 2016 opens Tuesday, December 15, 2015, at 8:00 a.m. and ends on Tuesday, January 19, 2016 at 5:00 p.m., in accordance with Section 115.127.5 RSMo as amended.

At said election there shall be elected:

A Mayor for a full term of two (2) years.
One (1) member of the Board of Aldermen for Ward #1 for the full term of two (2) years.
One (1) member of the Board of Aldermen for Ward #2 for the full term of two (2) years.
One (1) member of the Board of Aldermen for Ward #3 for the full term of two (2) years.

Qualified candidates may file with the City Clerk at Peculiar City Hall, 250 South Main St, from 8:00 a.m. until 5:00 p.m. Monday through Friday.

Please note: Filing opens on December 15, 2015, at 8:00 a.m. and ends on Tuesday, January 19, 2016 at 5:00 p.m., City Hall will be closed for business December 25, 2015 for the Christmas Holiday and January 1, 2016 for the New Years Day Holiday and January 18, 2016 for Martin Luther King Day.

There is a $10.00 filing fee payable by cash or check to the City of Peculiar at the time of filing.

Candidates are required to file a form 5120, Candidate's Affidavit of Tax Payments and Bonding Requirements, with the Missouri Department of Revenue and include a completed copy of said form with their Declaration of Candidacy.

The City of Peculiar will perform the random draw method in accordance with Section 115.124.2 RSMo as amended on the first day of filing to determine the ballot order of candidates for each office. After the first day, the order will be determined by the next candidate that files for each available office and so forth.

If you have questions or need additional information, contact the City Clerk's office at 816-779-2221.

Janet Burlingame, City Clerk

**BILL NO. 2015-29**
**ORDINANCE NO. _____**

**AN ORDINANCE OF THE CITY OF PECULIAR, MISSOURI CALLING FOR A GENERAL MUNICIPAL ELECTION ON APRIL 5, 2016 AND ESTABLISHING FILING DATES FOR SAID ELECTION**

**WHEREAS**, the General Municipal Election Day in Missouri has been determined to be April 5, 2016; and

**WHEREAS**, the term of the Mayor and three Aldermen will expire in April, 2016; and

**WHEREAS**. The filing and closing dates for such election have been determined by the State of Missouri

**NOW, THEREFORE BE IT ORDAINED BY THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR**

**Section 1.** A Municipal Election will be held on April 5, 2016 for the purpose of electing the following:

A Mayor for a full term of two (2) years.
One Alderman from Ward #1 for a term of two (2) years
One Alderman from Ward #2 for a term of two (2) years
One Alderman from Ward #3 for a term of two (2) years

**Section 2.** Qualified candidates may file with the City Clerk beginning at 8:00 a.m. on December 15, 2015. Filing will close at 5:00 p.m. on January 19, 2016.

**Section 3.** The effective date of this ordinance shall be the_____ day of _____, 2015.

**First Reading:** _____ **Second Reading**: _____

**BE IT REMEMBERED THE PRECEDING ORDINANCE WAS ADOPTED ON ITS SECOND READING THIS _____ DAY OF _____, 2015, BY THE FOLLOWING VOTE:**

| | | | |
|---|---|---|---|
| **Alderman Ford** | _____ | **Alderman McCrea** | _____ |
| **Alderman Hammack** | _____ | **Alderman Turner** | _____ |
| **Alderman Ray** | _____ | **Alderman Roberts** | _____ |

**Approved:** **Attest:**

_____ _____
**Holly Stark, Mayor** **Janet Burlingame, City Clerk**

**City Administrator**
*Brad Ratliff*

**City Clerk**
*Janet Burlingame*

**City Engineer**
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**Business Office**
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Municipal Offices – 250 S. Main Street, Peculiar, MO 64078
Phone: (816)779-5212 Facsimile: (816)779-1004

**To:** **Board of Aldermen**

**From:** **Clifford L. McDonald**

**Date:** **December 3, 2015**

**Re:** Resolution for the City to assume the Operational Costs of Street Lights, Twin Oaks

## GENERAL INFORMATION

**Applicant:** City

**Status of Applicant:** **N/A**

**Requested Actions:** The Board of Aldermen to consider the Resolution for the City to assume the Operational Costs of Street Lights in the Twin Oaks subdivision and Twin Oaks Parkway.

**Date of Application:** N/A

**Purpose:** The purpose is for the Board of Aldermen to consider the Resolution for the City to assume the Operational Costs of Street Lights in the Twin Oaks subdivision and Twin Oaks Parkway.

**Property Location (if applicable):** **Twin Oaks Subdivision and Twin Oaks Parkway**

## PROPOSAL

See "Requested Actions" above.

## PREVIOUS ACTIONS

None.

## KEY ISSUES

The Covenants & Restrictions for all of Twin Oaks (First & Second Plats, and Phase Three thru Five) state that the Home Owners Association will pay the cost of electricity and maintenance for all the Street Lights which serve their subdivision, this is unique among Peculiar's housing developments.

Paying the cost of all the Street Lights is an excessive financial burden for the Twin Oaks HOA. This is a service which Municipalities typically pay to provide for public safety and the benefit of their City's Residents. The City of Peculiar has already paid these costs for the past fifteen (15) years; the Resolution being presented for consideration would provide the HOA assurance it is being relieved of this potential burden.

## STAFF COMMENTS AND SUGGESTIONS

Board of Aldermen review the Resolution to assume the Operational cost of Street Lights in the Twin Oaks Subdivision, and Twin Oaks Parkway, with consideration for approval.

## STAFF RECOMMENDATION

Staff Recommends the Board of Aldermen consider the Resolution for approval.

## ATTACHMENTS

1. *Resolution to assume the Operations Costs for Street Lights in the Twin Oaks Subdivision and Twin Oaks Parkway.*

---

**STAFF CONTACT:** Clifford L. McDonald,
PH: 816-779-2226
E-mail: cmcdonald@cityofpeculiar.com

**RESOLUTION 2015-60**

**A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI APPROVING THE CITY OF PECULIAR TO ASSUME THE COST OF STREET LIGHT ELECTRICITY AND MAINTENANCE FOR THE TWIN OAKS SUBDIVISION**

**WHEREAS,** The Covenants and Restrictions of Twin Oaks First and Second Plats and the Covenants and Restrictions of the Final Plats of Twin Oaks Phase 3, 4 and 5 Article I DEFINITIONS, paragraph "j" defines "Street Lights" as meaning all street lights which are installed within the Properties or which are not installed within the Properties, but which provide lighting for the benefit of the Properties, and;

**WHEREAS,** The Covenants and Restrictions of Twin Oaks First and Second Plats and the Covenants and Restrictions of the Final Plats of Twin Oaks Phase 3, 4 and 5, ARTICLE V, Covenant for Maintenance and Assessments, Section 2 Purpose of assessments states: "This purpose shall include the payment of the costs of electricity to power the Street Lights" and;

**WHEREAS,** the City of Peculiar recognizes it is standard practice for a municipality to assume the operational cost of providing Street Lights for its residents to promote public safety and the general welfare, and;

**WHEREAS,** the cost of paying for the electricity and maintenance for all the Street Lights within the Twin Oaks subdivision by the Twin Oaks Home Owners Association would be an excessive financial burden;

**NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI**

**Section 1.** The City of Peculiar, Missouri shall hereby assume the operational cost (electricity and maintenance) for all Street Lights within the Twin Oaks Subdivision to include the decorative Street Lights lining Twin Oaks Parkway.

**Section 2.** *Effective Date.* The effective date of this Resolution shall be _____ day of _____, 2015.

Upon a roll call, said Resolution was adopted by the following vote:

| | | | |
|---|---|---|---|
| Alderman Hammack | _____ | Alderman Ray | _____ |
| Alderman Ford | _____ | Alderman Roberts | _____ |
| Alderman McCrea | _____ | Alderman Turner | _____ |

APPROVED: ATTEST:

_____ _____

Holly Stark, Mayor Janet Burlingame, City Clerk

**City Administrator**
*Brad Ratliff*

**City Clerk**
*Janet Burlingame*

**City Engineer**
*Carl Brooks*

**Business Office**
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Municipal Offices – 250 S. Main Street, Peculiar, MO 64078
Phone: (816)779-5212 Facsimile: (816)779-1004

**To:** Mayor & Board of Aldermen
**From:** Carl Brooks, City Engineer (cbrooks@cityofpeculiar.com)
**Date:** December 3, 2015
**Re:** Resolution No. 2015-61, Mayor & Board of Alderman (BOA) Acceptance of the MoDOT Traffic Engineering Assistance Program Assistance (Cass County), Missouri, of the Final Engineering Study prepared by TranSystems

## GENERAL INFORMATION

**Applicant:** City Staff
**Requested Actions:** Approval of resolution
**Purpose:** Acceptance of the MoDOT Traffic Engineering Assistance Program Grant for the traffic study on corridor Hwy C Final Engineering Study prepared by TranSystems.

**Property Location:** Route C and Schug Avenue
Route C and N. Main Street
Route C and North Street
Route C and Center Street/S. Peculiar Drive
Route C and South Street/S. Peculiar Drive

## PROPOSAL

Acceptance of the proposed Resolution No. 2015-61, by the Mayor & Board of Alderman (BOA) of the MoDOT Traffic Engineering Assistance Program Assistance (Cass County), Missouri, of the Final Engineering Study prepared by TranSystems.

## PREVIOUS ACTIONS

The City accepted an 80/20 engineering traffic study grant written by TranSystems Engineers that was submitted to MoDOT and approved by MoDOT.
The agreement consisted of a maximum grant amount of $10,000. Eighty percent of the amount would be covered by MoDOT. The engineer's scope of services included in the grant exceeded $10,000; therefore the City was solely responsible for the additional funds.
The City conducted a similar 2004 Corridor Study which was completed by TranSystems.

## KEY ISSUES

The engineering study report provides for traffic road lane improvement recommendations of the Route C corridor between South Street/S. Peculiar Drive and Schug Avenue

The report also provides a total project opinion of probable costs. The short term improvements total project cost is $1.4M in today's dollars. The engineer's opinion of probable total project cost for all Route C improvements is $2.7M.

The short and long term improvements could be applicable for MARC STP/BR grant funding early next year.

## STAFF COMMENTS AND SUGGESTIONS

City staff agrees with the 2015 Route C traffic study that has been prepared and completed by TranSystems.

## STAFF RECOMMENDATION

City staff recommends passage of this resolution.

## ATTACHMENTS

Resolution 2015-61

TEAP Traffic Study for Route C Final Engineering Study

Engineer’s opinion of probable total project cost for all Route C improvements

MISSOURI TRAFFIC ENGINEERING ASSISTANCE PROGRAM

# ROAD SEGMENT ANALYSIS

## Route C Between Peculiar Drive and Schug Avenue

Prepared for

CITY OF PECULIAR

By

TranSystems

June 2015

TranSystems

2400 Pershing Road
Suite 400
Kansas City, MO 64108
Tel 816 329 8600
Fax 816 329 8601

www.transystems.com

June 30, 2015

Mr. Carl M. Brooks, PE
City Engineer
250 S. Main Street
Peculiar, MO 64078

Re: Road Segment Analysis
Route C between Peculiar Drive and Schug Avenue

Dear Mr. Brooks,

In accordance with your request, TranSystems Corporation has prepared the following road segment analysis for the City of Peculiar, Missouri. The study included an assessment of existing operational and safety conditions along Route C, and identification of potential improvements to address deficiencies. Our data collection efforts, results and recommendations are summarized in the attached report.

We trust that this study has adequately addressed the concerns of the City. We have appreciated this opportunity to be of service to the Missouri Department of Transportation and the City of Peculiar. We will be available to review this study with you at your convenience.

Sincerely,

TranSystems

By: _____
Jeffrey J. Wilke, PE, PTOE

JJW:jjw:P101150072

STATE OF MISSOURI
JEFFREY J. WILKE
NUMBER PE-2007032448
PROFESSIONAL ENGINEER
6-30-15

## Introduction

TranSystems Corporation has prepared the following road segment analysis for the City of Peculiar, Missouri. The study included a review of existing operational and safety conditions along Route C, and identification of potential improvements to address deficiencies. In general, the focus of this study was the five-leg intersections with Peculiar Drive. The location of the study segment and vicinity are shown on Figure 1. This analysis was requested by Mr. Carl Brooks, City Engineer, under the Traffic Engineering Assistance Program (TEAP), administered by the Missouri Department of Transportation (MoDOT).

## Existing Conditions and Study Purpose

Route C is maintained by the Missouri Department of Transportation. Within Peculiar, Route C is a two-lane arterial street that runs primarily north/south, providing access to the regional highway system by way of an interchange with I-49. The intersections along Route C are stop sign controlled for the side street movements, with uninterrupted flow along Route C.

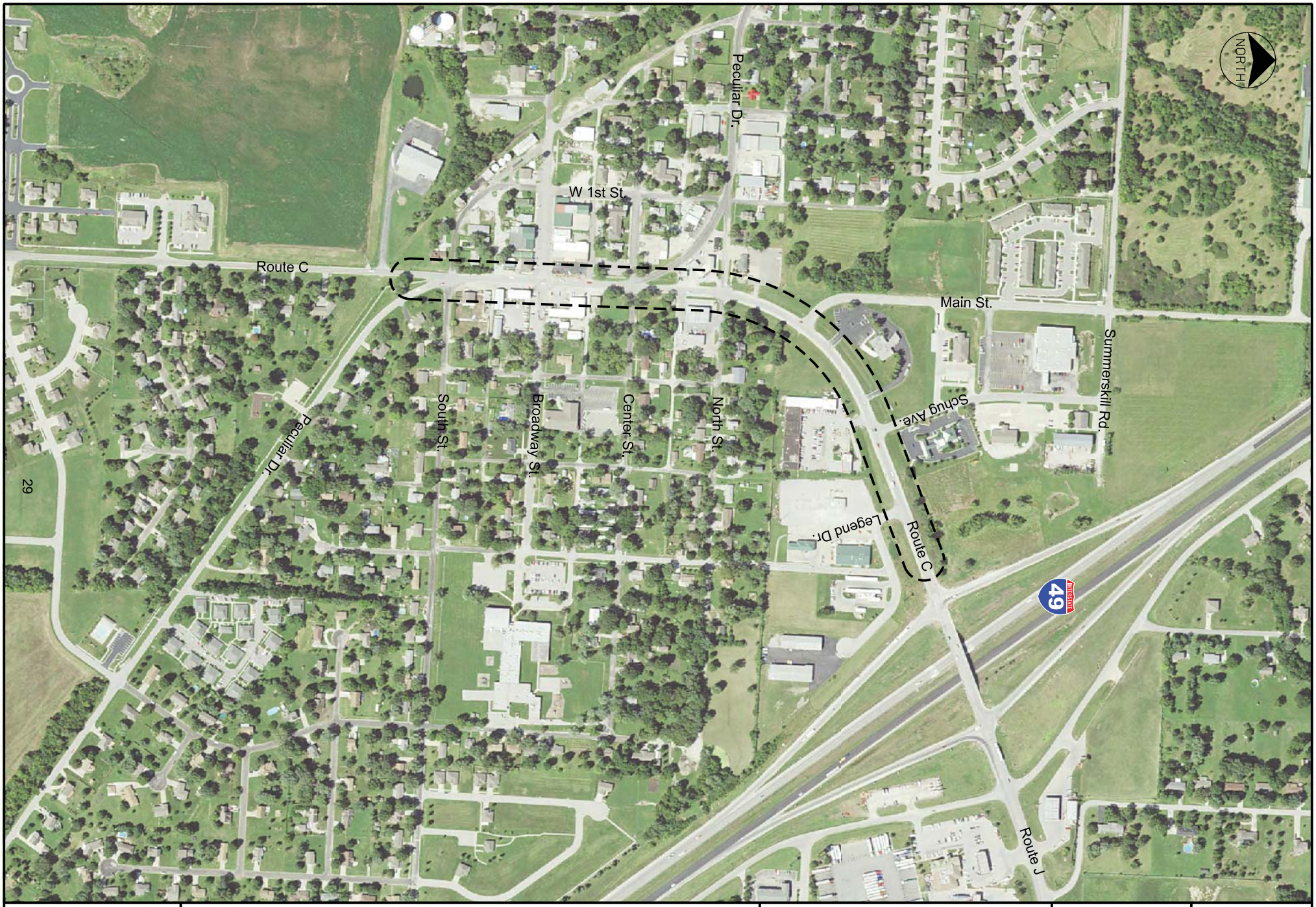
There are three different sections of Route C in the study area. To the south of the Peculiar Drive/South Street intersection, the roadway has a rural cross section without shoulders and a posted speed limit of 35 m.p.h. There are some residences and undeveloped land in this area. Between North Street and South Street there are aggregate shoulders varying in width along each side of the roadway, providing for some on-street parking activity. This segment of the road runs through the downtown commercial area of Peculiar, and the speed limit reduces to 25 m.p.h. To the north of North Street the alignment of Route C becomes more east/west with a large super-elevated horizontal curve. The speed limit is 25 m.p.h. through this section with 10-foot aggregate shoulders along each side of the road. Commercial developments line this section of the roadway.

A study was completed for this segment of Route C in 2004 to address operational and geometric concerns. Since that study was completed, a new interchange on I-49 at 211th Street has been planned and more information is known about future development potential. The City of Peculiar is interested to know if the recommendations of the 2004 study are still appropriate in light of this information. As a result, they have requested an update to that study.

## Scope of Study

The following program was developed to complete the analysis:

1. Obtain manual traffic volume counts at five intersections along the study segment during a morning and afternoon peak period.
2. Develop future traffic volume projections for the study intersections based on anticipated growth rates and future development potential.
3. Perform capacity analysis using the methodology outlined in the *Highway Capacity Manual* (HCM) published by the Transportation Research Board (TRB) to determine existing operational conditions.
4. Review crash experience along the study segment and evaluate the existing safety conditions using procedures in the *Highway Safety Manual* (HSM) published by the American Association of State Highway and Transportation Officials (AASHTO).
5. Analyze the data that were collected to determine potential measures that could be implemented to address identified deficiencies in the area. Items to consider could include geometric modifications, addition of turn lanes, and traffic control modifications.
6. Prepare a report documenting our data collection, analysis and recommendations.




| | | | | |
|---|---|---|---|---|
| TranSystems | STUDY AREA | Route C<br>Road Segment Analysis<br>Peculiar, Missouri | JUNE 2015<br>No Scale | Figure 1 |

# Data Collection

## Manual Traffic Volume Counts

TranSystems conducted manual turning movement counts at the Route C study intersections. The counts were conducted at each location on Wednesday, April 22, 2015, Thursday April 23, 2015, and Tuesday April 28, 2015 during the morning peak period (7:00 a.m. to 9:00 a.m.) and the afternoon peak period (4:00 to 6:00 p.m.). The turning movement volumes recorded during these peak times are shown in the Appendix (Figure A-1). Some findings and other observations that were noted during the peak periods are summarized below:

- During both peak hours, there was steady traffic on Route C, especially in the section between North Street and the I-49 interchange.
- Drivers on North Street experienced long delays while waiting to make left-turns onto Route C during peak times. There were few gaps in the flow of traffic, and queues frequently formed on the eastbound approach. The maximum queues observed were 5 and 9 vehicles in the morning and afternoon peak periods, respectively. Queues were not sustained throughout the peak periods as they did clear.
- Driver confusion was observed at times on the Peculiar Drive approaches to Route C. The skewed angle of the approaches makes it difficult for drivers to have a full view of opposing traffic as drivers must turn their head and look over their shoulder. During our morning observations a northbound driver on Peculiar Drive at the south intersection made the slight right-turn movement onto Route C in front of a northbound driver who had to brake abruptly to avoid a collision.

## Future Traffic Volume Projections

Several areas of Peculiar have the potential for significant future growth. These development areas are shown in the Appendix (Figure A-2). Several new residential developments have been planned and started in the southern portion of Peculiar, which will increase traffic volumes on Route C. Other new residential developments in the western portion of the city will not have as significant of an impact on Route C, as drivers traveling to and from these areas would be expected to use the new 211th Street interchange. The City's future land use plan indicates that retail development is planned along Main Street to the north of Route C.

Traffic volumes were adjusted to account for the new interchange at 211th Street and I-49. The traffic volumes presented in the Access Justification Report prepared for the interchange project estimate that traffic volumes on Route C to the west of the I-49 interchange will reduce by as much as 20% following construction. The new interchange will have the greatest impact on Route C traffic traveling to/from the west via North Street and Peculiar Drive. As such, the eastbound left-turn movement and the southbound right-turn movements at the Route C and North Street intersection were reduced. Those same reductions were applied to the volume of through traffic on Route C at the Main Street and Schug Avenue intersections.

To develop future traffic volume projections, trip generation estimates were made for the future developments that could impact the study area. Trip generation estimates were prepared using the Institute of Transportation Engineer's *Trip Generation*, 9th Edition. These trips were distributed to Route C and Main Street to reflect the movements that would be most impacted by new development. The trip generation calculations and distribution patterns through the study intersections are shown in Appendix B. For all other traffic movements, existing traffic volumes were increased by 22% to reflect background growth of 1% per year over the next 20 years. This growth rate is comparable to the City's recent growth patterns. The future traffic volume projections have been illustrated in the Appendix (Figure A-3).

## Operational Analysis

Delay is an average measure of the time a vehicle is standing still while waiting in the approach to an intersection. A high level of delay can result in increased travel time, excessive fuel consumption, driver discomfort and frustration. Level of service (LOS) describes the quality of traffic operating conditions at an intersection based on delay, and is rated from "A" to "F". LOS A represents the most desirable condition with free-flow movement of traffic and minimal delays. LOS F generally indicates congested conditions with excessive delays to motorists. Intermediate grades of B, C, D, and E reflect incremental increases in the average stopped delay per vehicle. Table 1 on the following page shows the upper limit of delay associated with each level of service for unsignalized intersections.

Table 1
Unsignalized Intersection Level of Service Delay Thresholds

| Level of Service (LOS) | Delay |
|---|---|
| A | 0 – 10 seconds |
| B | > 10 - 15 seconds |
| C | > 15 - 25 seconds |
| D | > 25 - 35 seconds |
| E | > 35 - 50 seconds |
| F | > 50 seconds |

Delay at the intersections was calculated using *Highway Capacity Manual* methods and the Synchro analysis program. This program uses a complex function that depends on a number of variables. Synchro input data included the existing lane configurations, traffic controls, and the traffic volumes shown on Figure A-1. The outputs from the Synchro analysis for the existing conditions are included in Appendix C. The average delay per vehicle and the corresponding levels of service during the peak hours are summarized in Table 2.

Table 2
Existing Conditions Delay and Operations

| Intersection / *Movement* | Morning Peak Hour | | Afternoon Peak Hour | |
|---|---|---|---|---|
| | LOS † | Delay * | LOS † | Delay * |
| Route C and South Street / Peculiar Drive | | | | |
| *Eastbound* | *C* | *16.1* | *C* | *16.7* |
| *Westbound* | *B* | *14.5* | *B* | *10.5* |
| *Northbound Left-Turn* | *A* | *0.1* | *A* | *0.2* |
| *Southbound Left-Turn* | *A* | *3.0* | *A* | *2.6* |
| Route C and Center Street / Peculiar Drive | | | | |
| *Eastbound* | *B* | *10.6* | *B* | *11.8* |
| *Westbound* | *B* | *11.0* | *C* | *15.6* |
| *Northbound Left-Turn* | *A* | *1.3* | *A* | *3.2* |
| *Southbound Left-Turn* | *A* | *0.2* | *A* | *0.1* |
| Route C and North Street | | | | |
| *Eastbound* | ***E*** | ***43.7*** | ***F*** | ***60.4*** |
| *Westbound* | *B* | *13.4* | *C* | *16.1* |
| *Northbound Left-Turn* | *A* | *0.3* | *A* | *0.7* |
| *Southbound Left-Turn* | *A* | *1.3* | *A* | *1.3* |
| Route C and Main Street | | | | |
| *Eastbound Left-Turn* | *A* | *0.1* | *A* | *0.7* |
| *Southbound Left-Turn* | *C* | *20.5* | *D* | *25.4* |
| *Southbound Right-Turn* | *A* | *9.8* | *B* | *13.0* |
| Route C and Schug Avenue | | | | |
| *Eastbound Left-Turn* | *A* | *0.3* | *A* | *1.0* |
| *Westbound Left-Turn* | *A* | *0.2* | *A* | *0.8* |
| *Northbound* | *C* | *19.0* | *C* | *22.6* |
| *Southbound* | *B* | *12.9* | ***F*** | ***59.5*** |

† Level of Service

* Average delay per stopped vehicle measured in seconds

The results of the analysis indicate that during both peak hours most of the intersections currently operate at an acceptable level of service (LOS D or better). The eastbound approach at the Route C and North Street intersection operates at LOS E and LOS F during the morning and afternoon peak hours, respectively. These lower levels of service are evidenced by the queuing that was observed. The southbound approach to the Route C and Schug Avenue intersection also operates at LOS F during the afternoon peak hour.

To assess operations of the corridor in the future, Synchro analysis was performed using the existing lane configurations, traffic controls, and the future traffic volumes shown on Figure A-3. The outputs from the Synchro analysis for the future conditions are included in Appendix C. The average delay per vehicle and the corresponding levels of service during the peak hours are summarized in Table 3.

Table 3
Future Year 2035 Conditions Delay and Operations

| Intersection / *Movement* | Morning Peak Hour | | Afternoon Peak Hour | |
|---|---|---|---|---|
| | LOS † | Delay * | LOS † | Delay * |
| Route C and South Street / Peculiar Drive | | | | |
| *Eastbound* | *C* | *16.6* | *D* | *30.2* |
| *Westbound* | *B* | *14.0* | *B* | *13.2* |
| *Northbound Left-Turn* | *A* | *0.0* | *A* | *0.1* |
| *Southbound Left-Turn* | *A* | *2.6* | *A* | *2.9* |
| Route C and Center Street / Peculiar Drive | | | | |
| *Eastbound* | *B* | *12.3* | *C* | *16.0* |
| *Westbound* | *B* | *12.5* | *D* | *29.6* |
| *Northbound Left-Turn* | *A* | *1.5* | *A* | *3.7* |
| *Southbound Left-Turn* | *A* | *0.3* | *A* | *0.1* |
| Route C and North Street | | | | |
| *Eastbound* | ***F*** | ***76.0*** | ***F*** | ***>100*** |
| *Westbound* | *C* | *16.9* | *D* | *30.6* |
| *Northbound Left-Turn* | *A* | *0.3* | *A* | *0.8* |
| *Southbound Left-Turn* | *A* | *1.5* | *A* | *1.7* |
| Route C and Main Street | | | | |
| *Eastbound Left-Turn* | *A* | *1.0* | *A* | *4.2* |
| *Southbound Left-Turn* | *D* | *25.0* | ***F*** | ***>100*** |
| *Southbound Right-Turn* | *A* | *9.5* | *C* | *18.8* |
| Route C and Schug Avenue | | | | |
| *Eastbound Left-Turn* | *A* | *0.3* | *A* | *1.1* |
| *Westbound Left-Turn* | *A* | *0.3* | *A* | *1.2* |
| *Northbound* | *C* | *21.9* | ***E*** | ***45.4*** |
| *Southbound* | *C* | *15.4* | ***F*** | ***>100*** |

† Level of Service

* Average delay per stopped vehicle measured in seconds

Lengthy delays are projected in the future for the stop controlled movements at the Route C intersections with North Street, Main Street, and Schug Avenue, especially during the afternoon peak hour. Improvements are needed to allow for side street traffic to access Route C in the future.

## Crash Experience

Crash records were obtained from the City for the study segment for the time period between January 1, 2010, and December 31, 2014. Using the crash data, the Consultant prepared a crash location diagram to identify crash types and their approximate

locations along the corridor. This diagram has been included in the Appendix (Figure A-4). The numbers of each type of crash are listed in Table 4.

Table 4
Crash Types by Year

| Year | Crash Type | | | | | Total |
|---|---|---|---|---|---|---|
| | Rear End | Angle | Left Turn | Fixed Object | Other | |
| 2010 | 4 | 1 | -- | -- | 1 | 6 |
| 2011 | 4 | -- | 1 | 1 | 1 | 7 |
| 2012 | 4 | 2 | 1 | 1 | -- | 8 |
| 2013 | 5 | 1 | -- | -- | -- | 6 |
| 2014 | 2 | -- | 1 | -- | -- | 3 |
| Total | 19 | 4 | 3 | 2 | 2 | 30 |

Over this roughly 60-month time period, the data indicates that there is a moderate crash frequency along the study segment (6.0 crashes per year). The most predominant crash type along the corridor is rear end crashes. Twelve (12) of the 19 rear end crashes occurred on Route C at the Schug Avenue or Legend Drive intersection. All but one of these crashes occurred behind an eastbound or westbound vehicle on Route C stopped or slowing to turn left at the intersections. Other crash types that occurred include angle and left-turn crashes at various intersections. No further patterns or tendencies could be discerned from the data provided.

The five-leg intersections with Peculiar Drive do not have crash frequencies that are a concern, which is likely due to the low speed environment and driver familiarity with conditions. While the accidents types at these locations do not currently indicate a problem with this condition, studies have shown that sight angles at skewed intersections increase the difficulty for drivers to perceive safe crossing gaps, thereby resulting in higher accident rates.

## Highway Safety Manual Analysis

To further evaluate the existing safety characteristics of the corridor, TranSystems used procedures outlined in the HSM to determine the predicted average crash frequency (crashes per year) for the study segment. Results from the HSM analysis for the road segments and intersections have been included in Appendix D and are summarized in Table 5. The actual crash frequencies for the study segments and intersections have also been included in Table 5.

Table 5
HSM Predicted Average Crash Frequency vs. Actual Crash Frequency

| Road Segment | Crash Frequency (crashes per year) | | |
|---|---|---|---|
| | Predicted | Actual | % difference |
| I-49 SB ramps to Schug Avenue | 1.6 | 1.4 | - 13 % |
| Schug Avenue to Main Street | 1.3 | 1.2 | - 8 % |
| Main Street to North Street | 1.8 | 1.0 | - 44 % |
| North Street to Center Street | 1.4 | 1.0 | - 29 % |
| Center Street to South Street | 1.4 | 0.8 | - 43 % |
| South Street to Fire Station driveway | 0.8 | 0.6 | - 25 % |
| Total | 8.3 | 6.0 | - 28% |

## Analysis

Based on the data that were collected, the consultant considers the Route C study segment to generally be operating satisfactorily overall. Levels of service for motorists are generally acceptable during the peak hours, and the crash frequency is less than the projected crash frequency for an urban or suburban arterial with similar characteristics. However, there are some areas of concern, which are listed below:

- The five-leg intersections create some driver confusion because they are not a standard type of intersection. The skew angle of the Peculiar Drive approaches makes it difficult for drivers to perceive safe crossing gaps, thereby resulting in the potential for higher accident rates.
- A number of rear end crashes have occurred on Route C behind vehicles stopped to turn left at Schug Avenue and at Legend Drive.
- Lengthy delays and long queues form during the peak hours on the eastbound approach of the Route C and North Street intersection.
- Long delays are projected in the future at several side street approaches to the Route C corridor. Improvements are needed to allow for side street traffic to access Route C in the future.

The new interchange at I-49 and 211th Street will have a significant effect on traffic flow in Peculiar. The change in traffic volumes has been estimated, but the full effect will not be known until the project is completed an opened to traffic. For that reason, traffic volumes should be monitored following construction to determine the actual impacts to the Route C corridor. Traffic control changes should not be implemented until these impacts are determined.

### Short Term Improvements

In the short-term, several of the concerns identified in can be addressed with some geometric improvements. These improvements will be applicable in the long-term as well. Sketches of the improvements are illustrated on Figures 2 and 3.

The following paragraphs describe the short-term improvement recommendations to address the concerns identified above.

Route C and South Street / Peculiar Drive

To create a more standard intersection configuration and eliminate the skewed approach, Peculiar Drive should be realigned to intersect Route C as indicated on Figure 2. This will result in a perpendicular angle of intersection, and a standard four-leg intersection configuration. The Route C and South street intersection will also be a standard four-leg intersection. Both intersections can operate with stop sign control for eastbound and westbound traffic, with Route C allowed uninterrupted flow.

Figure 2 shows the new Peculiar Drive intersection to be at the location of the existing fire station driveway on the west side of Route C. It may be advantageous to shift the intersection farther south so the future west leg of the intersection could provide access to the undeveloped land on the west side of the road. If that is the case, the fire station driveway should be reconfigured to access that new road instead of Route C.

Route C and Center Street / Peculiar Drive

At Center Street the skewed Peculiar Drive approach should be removed as indicated on Figure 3. This will result in a standard four-leg intersection configuration at Center Street, with stop sign control for eastbound and westbound traffic. The existing curved segment of Peculiar Drive between North Street and Route C should be converted to parking lots and alleys to provide parking and access to adjacent businesses. The Peculiar Drive approach to the intersection with North Street and W. 1st Street should also be eliminated. This will also result in a standard four-leg intersection at North Street and W. 1st Street, with stop sign control for northbound and southbound traffic. After these modifications, two-way traffic flow should be considered on Center Street and W. 1st Street.

Route C and North Street

Eliminating the curved segment of Peculiar Drive will increase traffic on the west leg of the North Street intersection with Route C.

pw:\\HQ-PWINT01.A-E.TRANSYSCORP.COM:transyscorp-pw1\Documents\Projects\KC101 - Kansas City\P101150072 - Route C TEAP Study\40.0000 - Detailed Design (Specifications, Drawings, Calculations)\44.0000 - CMI\44.1200 - Traffic\Figures_P101150072

| | | | | |
|---|---|---|---|---|
| TranSystems | SHORT TERM IMPROVEMENTS | Route C<br>Road Segment Analysis<br>Peculiar, Missouri | JUNE 2015<br>No Scale | Figure 2 |

pw:\\HQ-PWINT01.A-E.TRANSYSCORP.COM:transyscorp-pw1\Documents\Projects\KC101 - Kansas City\P101150072 - Route C TEAP Study\40.0000 - Detailed Design (Specifications, Drawings, Calculations)\44.0000 - CMM\44.1200 - Traffic\Figures_P101150072

| | | | | |
|---|---|---|---|---|
| TranSystems | SHORT TERM IMPROVEMENTS | Route C<br>Road Segment Analysis<br>Peculiar, Missouri | JUNE 2015<br>No Scale | Figure 3 |

To provide additional capacity for the increased traffic volume, eastbound and westbound left-turn lanes should be constructed on North Street. These turn lanes will allow the right-turn traffic to bypass the queues of left-turning vehicles during peak times.

Route C and Schug Avenue

The concepts presented in the 2004 study to the east of Main Street have been adopted by the Peculiar Board of Alderman, and are reflected Figure 3. These concepts include realigning Schug Avenue to the existing driveway on the south side of Route C, constructing left-turn lanes on Route C at Schug Avenue, eliminating the Legend Drive intersection with Route C, and providing cross-access through the parcels on the south side of Route C to connect to Legend Drive. The addition of turn lanes on Route C will considerably reduce the potential for rear-end crashes and decrease congestion in this area.

To assess operations along Route C with the short term improvements, traffic volumes were redistributed, as shown in the Appendix (Figure A-5). These volumes include the adjustment for the new interchange at 211th Street and I-49. Synchro analysis was performed, and the average delay per vehicle and the corresponding levels of service during the peak hours are summarized in Table 6. The outputs from the Synchro analysis for the short term improvements are included in Appendix C.

Table 6
Short-Term Improvements Delay and Operations

| Intersection / *Movement* | Morning Peak Hour | | Afternoon Peak Hour | |
|---|---|---|---|---|
| | LOS † | Delay * | LOS † | Delay * |
| Route C and Peculiar Drive | | | | |
| *Westbound* | *B* | *11.1* | *A* | *10.0* |
| *Southbound Left-Turn* | *A* | *2.6* | *A* | *2.3* |
| Route C and South Street | | | | |
| *Eastbound* | *B* | *12.6* | *B* | *14.4* |
| *Westbound* | *B* | *11.5* | *B* | *11.5* |
| *Northbound Left-Turn* | *A* | *0.1* | *A* | *0.1* |
| *Southbound Left-Turn* | *A* | *0.1* | *A* | *0.4* |
| Route C and Center Street | | | | |
| *Eastbound* | *C* | *16.8* | *C* | *15.5* |
| *Westbound* | *B* | *11.6* | *B* | *13.4* |
| *Northbound Left-Turn* | *A* | *0.0* | *A* | *0.0* |
| *Southbound Left-Turn* | *A* | *0.3* | *A* | *0.1* |
| Route C and North Street | | | | |
| *Eastbound Left-Turn* | *D* | *29.1* | ***E*** | ***42.2*** |
| *Eastbound Shared Right-Turn / Through* | *B* | *13.4* | *C* | *17.9* |
| *Westbound Left-Turn* | *C* | *25.4* | ***E*** | ***39.0*** |
| *Westbound Shared Right-Turn / Through* | *B* | *13.5* | *C* | *14.5* |
| *Northbound Left-Turn* | *A* | *1.6* | *A* | *3.7* |
| *Southbound Left-Turn* | *A* | *1.4* | *A* | *1.5* |
| Route C and Main Street | | | | |
| *Eastbound Left-Turn* | *A* | *0.2* | *A* | *0.7* |
| *Southbound Left-Turn* | *C* | *17.6* | *C* | *19.5* |
| *Southbound Right-Turn* | *A* | *9.6* | *B* | *11.8* |
| Route C and Schug Avenue | | | | |
| *Eastbound Left-Turn* | *A* | *7.8* | *A* | *9.0* |
| *Westbound Left-Turn* | *A* | *8.8* | *A* | *8.0* |
| *Northbound* | *C* | *16.5* | *C* | *16.9* |
| *Southbound* | *B* | *11.9* | *D* | *34.0* |

† Level of Service

* Average delay per stopped vehicle measured in seconds

All intersections are projected to operate at acceptable levels of service with the proposed improvements, with the exception of the eastbound and westbound left-turn movements at the Route C and North Street intersection. During the afternoon peak hour these movements are projected to operate at LOS E. This is a slight improvement in the eastbound direction because the left-turn movement at that approach currently operates at LOS F during the afternoon peak hour. Queue lengths are also projected to be less than the existing queues. To further improve the levels of service on the side street approaches, a change in traffic control would be needed; however, the traffic volumes are not projected to satisfy warrants for a traffic signal installation.

## Estimated Cost of Short Term Improvements

A preliminary cost estimate was prepared by TranSystems and is summarized in Table 7. A more detailed cost estimate is included in Appendix E.

Table 7
Short Term Improvements Cost Estimate

| Item Of Work | South Peculiar Intersection | Schug Avenue Intersection | North Peculiar Intersection | Totals |
|---|---|---|---|---|
| Mobilization and Staking | $15,000 | $40,000 | $45,000 | $100,000 |
| Earthwork and Removals | $46,000 | $123,000 | $138,000 | $307,000 |
| Paving | $82,000 | $218,000 | $246,000 | $546,000 |
| Miscellaneous | $13,000 | $35,000 | $39,000 | $87,000 |
| Subtotal Construction Costs | $156,000 | $416,000 | $468,000 | $1,040,000 |
| Design Fee | $19,000 | $50,000 | $56,000 | $125,000 |
| Construction Inspection and Testing | $20,000 | $54,000 | $61,000 | $135,000 |
| MoDOT and MARC Fees | $16,000 | $44,000 | $49,000 | $109,000 |
| Total Project Cost* | $211,000 | $564,000 | $634,000 | $1,409,000 |

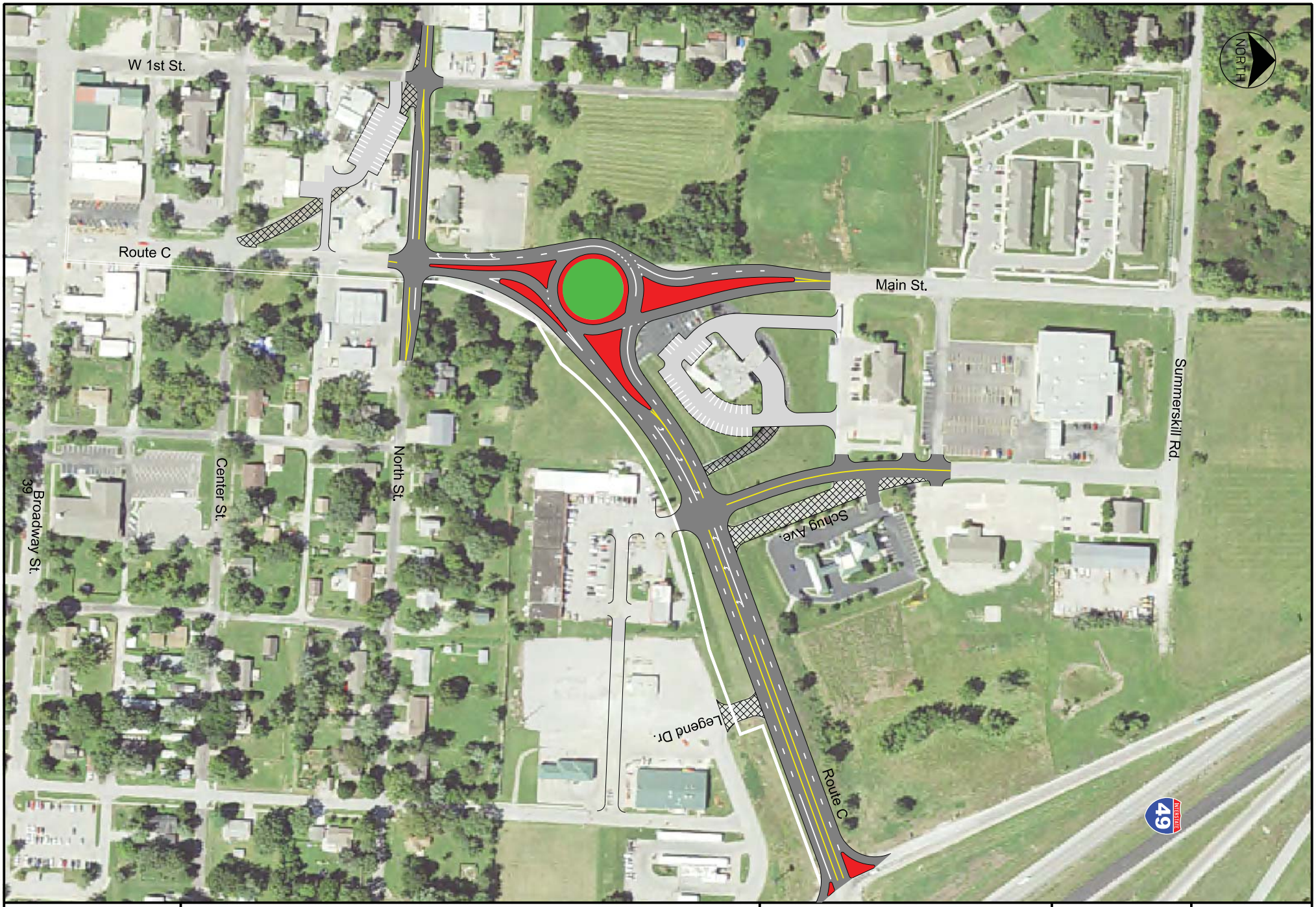
* Project cost does not include any utility relocations or property acquisition

## Long Term Improvements

In the future, traffic volumes are projected to significantly increase along the Route C corridor and on Main Street. Long delays are projected for the side street movements at the intersections with North Street, Main Street and Schug Avenue. Traffic control improvements will be needed in order to provide acceptable operations for side street traffic accessing Route C. Traffic volumes at the Route C intersections with North Street and with Schug Avenue are projected to be near the thresholds for traffic signal installation, while the Main Street intersection is projected to exceed thresholds. None of these intersections is considered to be a good candidate for traffic signal installation due to the close spacing of the intersections. As a signalized corridor, there would be a high likelihood for queues to spill back through adjacent intersections during peak times.

Another option to consider is roundabout control. The previous study illustrated a dual lane roundabout that incorporated Route C, Main Street, and the west leg of the North Street intersection. This configuration provided a more direct route for east/west traffic between Route C and North Street/Peculiar Drive. The previously proposed roundabout would require significant property acquisition in the northwest quadrant of the Route C and North Street intersection.

In light of the new interchange at 211th Street, North Street/Peculiar Drive will become a less significant route for traffic to and from the west. Also, traffic to and from the west can access Route C at Main Street via Summerskill Road. Therefore, it is not as necessary to incorporate North Street into the roundabout. A dual lane roundabout at the Route C and Main Street intersection could provide substantial benefit with minor property acquisition. Additional lanes would also be needed on Route C between the dual lane roundabout and the I-49 interchange. A sketch of the roundabout is illustrated on Figure 4.




| | | | | |
|---|---|---|---|---|
| TranSystems | LONG TERM IMPROVEMENTS | Route C<br>Road Segment Analysis<br>Peculiar, Missouri | JUNE 2015<br>No Scale | Figure 4 |

An operational analysis of the long term improvements was performed. Future traffic volumes for the long-term improvements are shown in the Appendix (Figure A-6). The average delay per vehicle and the corresponding levels of service during the peak hours are summarized in Table 8. The outputs from the Synchro analysis for the future conditions are included in Appendix C.

Table 8
Long Term Improvements Delay and Operations

| Intersection / *Movement* | Morning Peak Hour | | Afternoon Peak Hour | |
|---|---|---|---|---|
| | LOS † | Delay * | LOS † | Delay * |
| Route C and Peculiar Drive | | | | |
| *Westbound* | *B* | *12.6* | *B* | *11.8* |
| *Southbound Left-Turn* | *A* | *2.5* | *A* | *2.6* |
| Route C and South Street | | | | |
| *Eastbound* | *B* | *14.4* | *C* | *22.4* |
| *Westbound* | *B* | *13.3* | *C* | *16.4* |
| *Northbound Left-Turn* | *A* | *0.1* | *A* | *0.1* |
| *Southbound Left-Turn* | *A* | *0.1* | *A* | *0.5* |
| Route C and Center Street | | | | |
| *Eastbound* | *C* | *22.3* | *C* | *21.5* |
| *Westbound* | *B* | *14.1* | *D* | *25.8* |
| *Northbound Left-Turn* | *A* | *0.0* | *A* | *0.0* |
| *Southbound Left-Turn* | *A* | *0.3* | *A* | *0.1* |
| Route C and North Street | | | | |
| *Eastbound Left-Turn* | ***F*** | ***>100*** | ***F*** | ***>100*** |
| *Eastbound Shared Right-Turn / Through* | *C* | *17.3* | ***E*** | ***42.5*** |
| *Westbound Left-Turn* | ***E*** | ***40.6*** | ***F*** | ***>100*** |
| *Westbound Shared Right-Turn / Through* | *C* | *18.0* | *D* | *26.3* |
| *Northbound Left-Turn* | *A* | *1.8* | *A* | *4.7* |
| *Southbound Left-Turn* | *A* | *1.4* | *A* | *1.8* |
| Route C and Main Street | | | | |
| *Roundabout Northbound* | *B* | *13.7* | *A* | *9.6* |
| *Roundabout Westbound* | *A* | *4.9* | *A* | *8.2* |
| *Roundabout Southbound* | *A* | *5.1* | *A* | *8.3* |
| Route C and Schug Avenue | | | | |
| *Eastbound Left-Turn* | *A* | *8.1* | *B* | *10.2* |
| *Westbound Left-Turn* | *A* | *9.3* | *A* | *8.7* |
| *Northbound* | *C* | *17.8* | *D* | *25.4* |
| *Southbound* | *B* | *12.0* | ***F*** | ***>100*** |

Each approach to the roundabout is projected to operate at an acceptable LOS. Some lengthy delays are projected for the stop controlled movements from the North Street and the Schug Avenue intersections. As previously mentioned, these intersections are not good candidates for traffic signal installation due to the close spacing of the intersections. Further, it is generally not efficient to mix roundabouts and traffic signals along a corridor. Southbound drivers on Schug Avenue and eastbound drivers on North Street have alternate routes to access Route C via Main Street if delays are unacceptable to drivers.

## Conclusion

The above study has focused on potential operational and safety improvements for the segment of Route C between Peculiar Drive and Schug Avenue in Peculiar, Missouri. The study included an assessment of the existing operational and safety conditions and along Route C, and identification of potential improvements to address deficiencies.

Based on the data that were collected, the study segment of Route C is generally operating satisfactorily overall. However, there are some areas of concern, which are summarized below:

- The five-leg intersections create some driver confusion because they are not a standard type of intersection. The skew angle of the Peculiar Drive approaches makes it difficult for drivers to perceive safe crossing gaps, thereby resulting in the potential for higher accident rates.

- A number of rear end crashes have occurred on Route C behind vehicles stopped to turn left at Schug Avenue and at Legend Drive.

- Lengthy delays and long queues form during the peak hours on the eastbound approach of the Route C and North Street intersection.

- Long delays are projected in the future at several side street approaches to the Route C corridor. Improvements are needed to allow for side street traffic to access Route C in the future.

Improvements were identified for two time frames. In the short term, it would be appropriate to eliminate the five-leg intersections with Peculiar Drive and add left-turn lanes at several intersection approaches. The short term improvements are illustrated on Figures 2 and 3. In the long term, traffic volumes are projected to increase, and traffic control improvements will be needed to improve operations for side street traffic accessing Route C. Construction of a dual lane roundabout at the intersection of Route C and Main Street would provide acceptable levels of service at a location that is accessible for many drivers in the western portion of Peculiar.

# Appendix A

Existing Peak Hour Traffic Volumes ..... Figure A-1

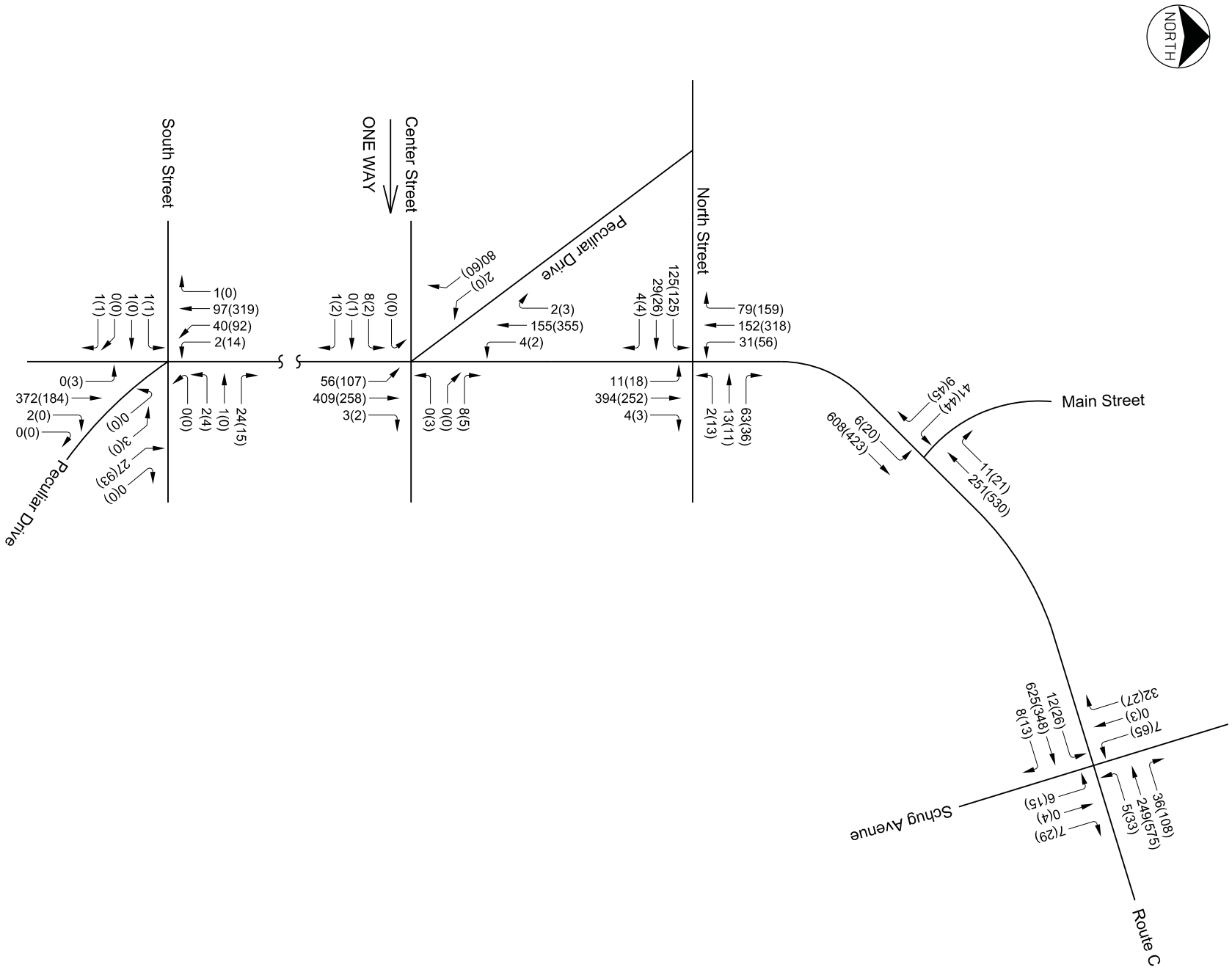
Future Development Areas ..... Figure A-2

Future Year 2035 Peak Hour Traffic Volume Projections ..... Figure A-3

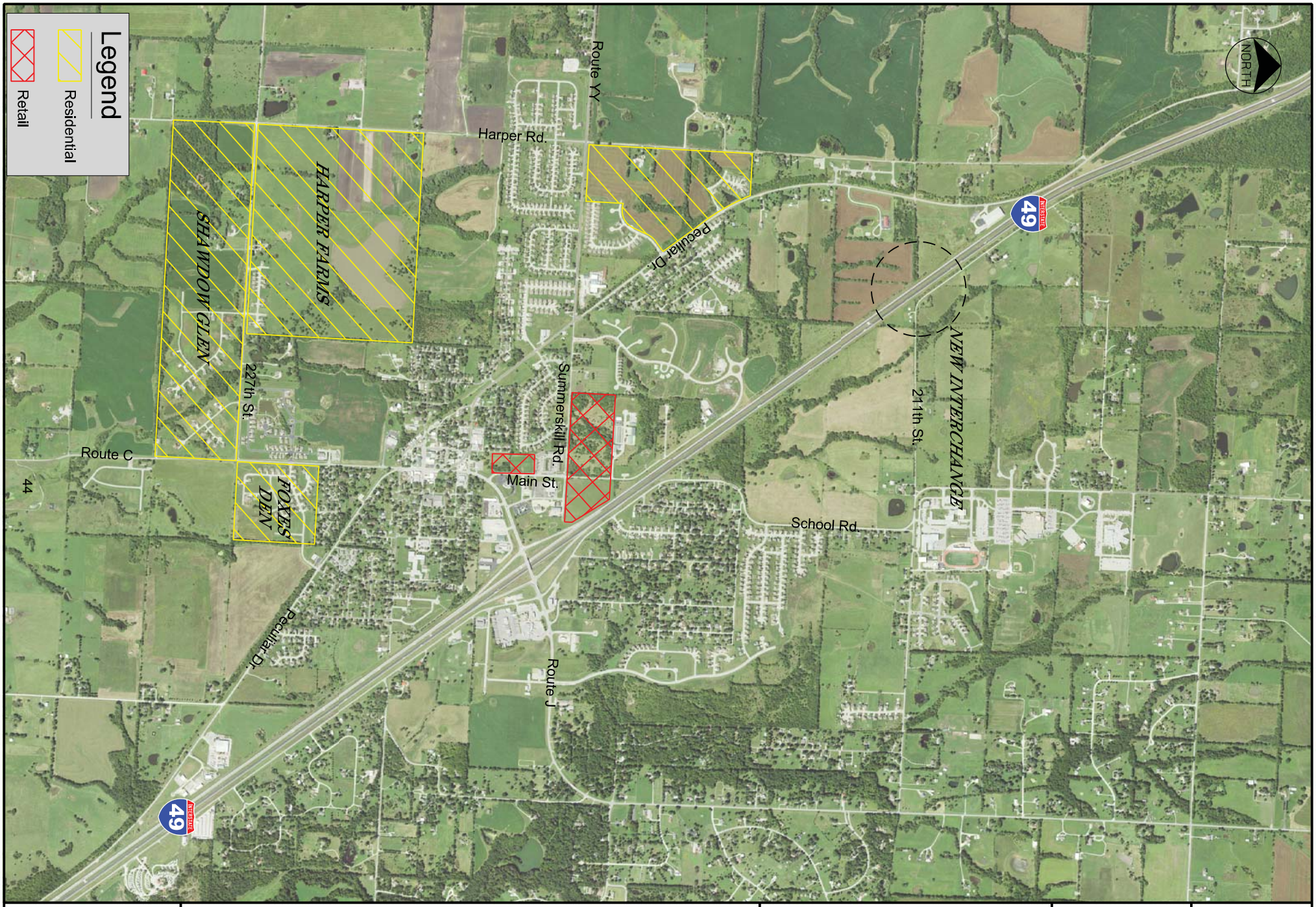
Crash Types and Locations ..... Figure A-4

Short Term Improvements Traffic Volume Projections ..... Figure A-5

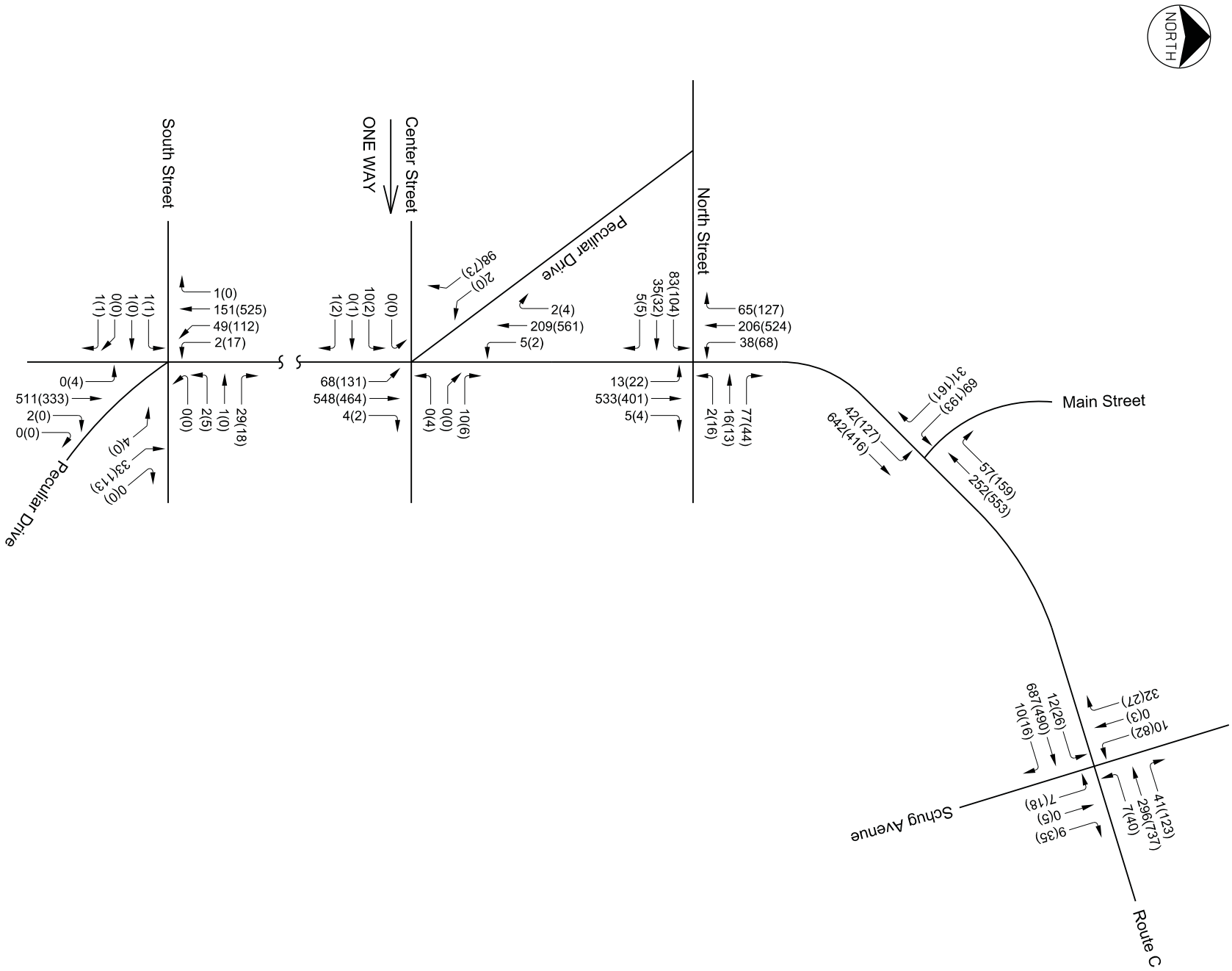
Long Term Improvements Traffic Volume Projections ..... Figure A-6




| | | | | |
|---|---|---|---|---|
| TranSystems | EXISTING<br>PEAK HOUR TRAFFIC VOLUMES | Route C<br>Road Segment Analysis<br>Peculiar, Missouri | JUNE 2015<br>No Scale | Figure A-1 |



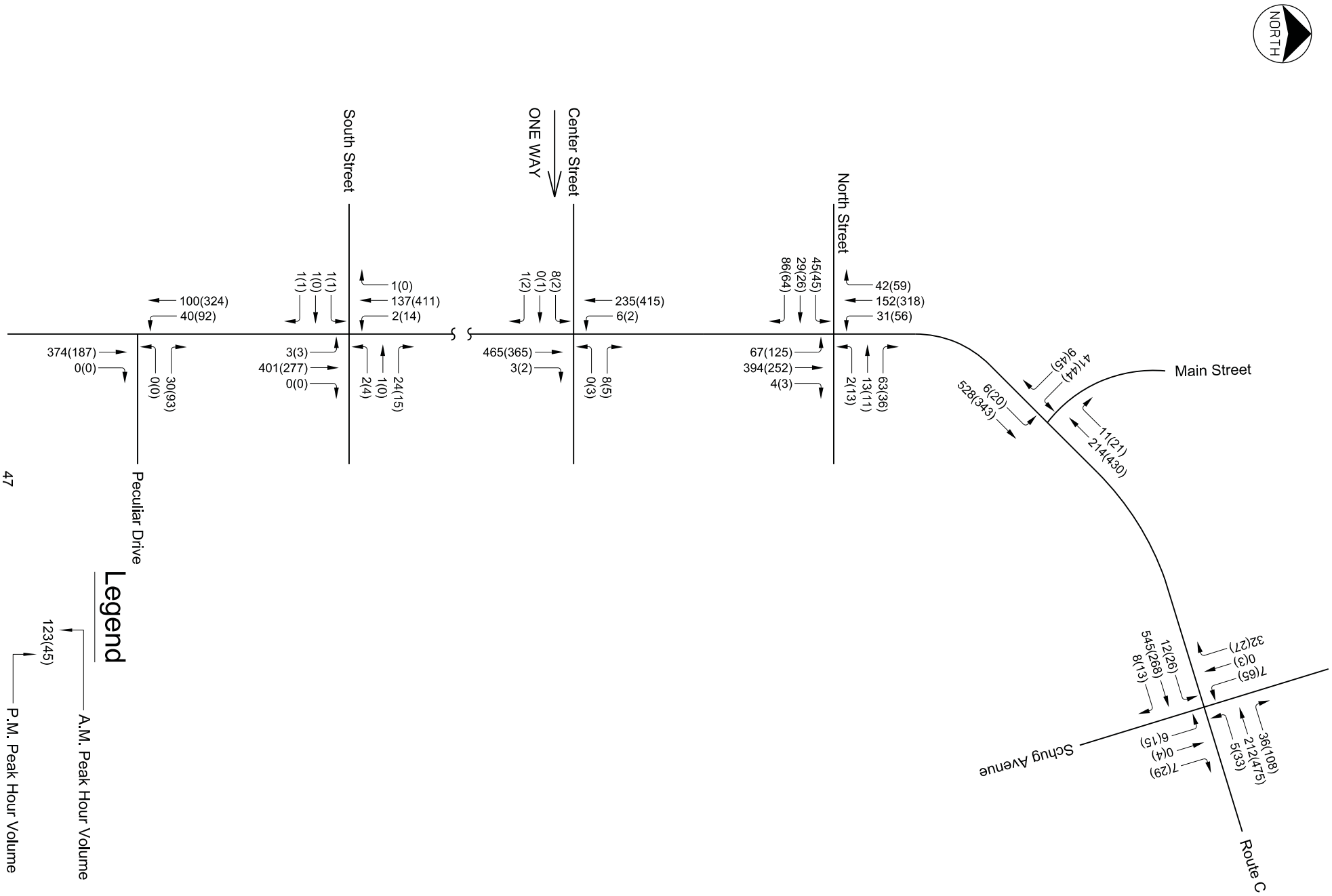

| | | | | |
|---|---|---|---|---|
| TranSystems | FUTURE DEVELOPMENT AREAS | Route C<br>Road Segment Analysis<br>Peculiar, Missouri | JUNE 2015<br>No Scale | Figure A-2 |



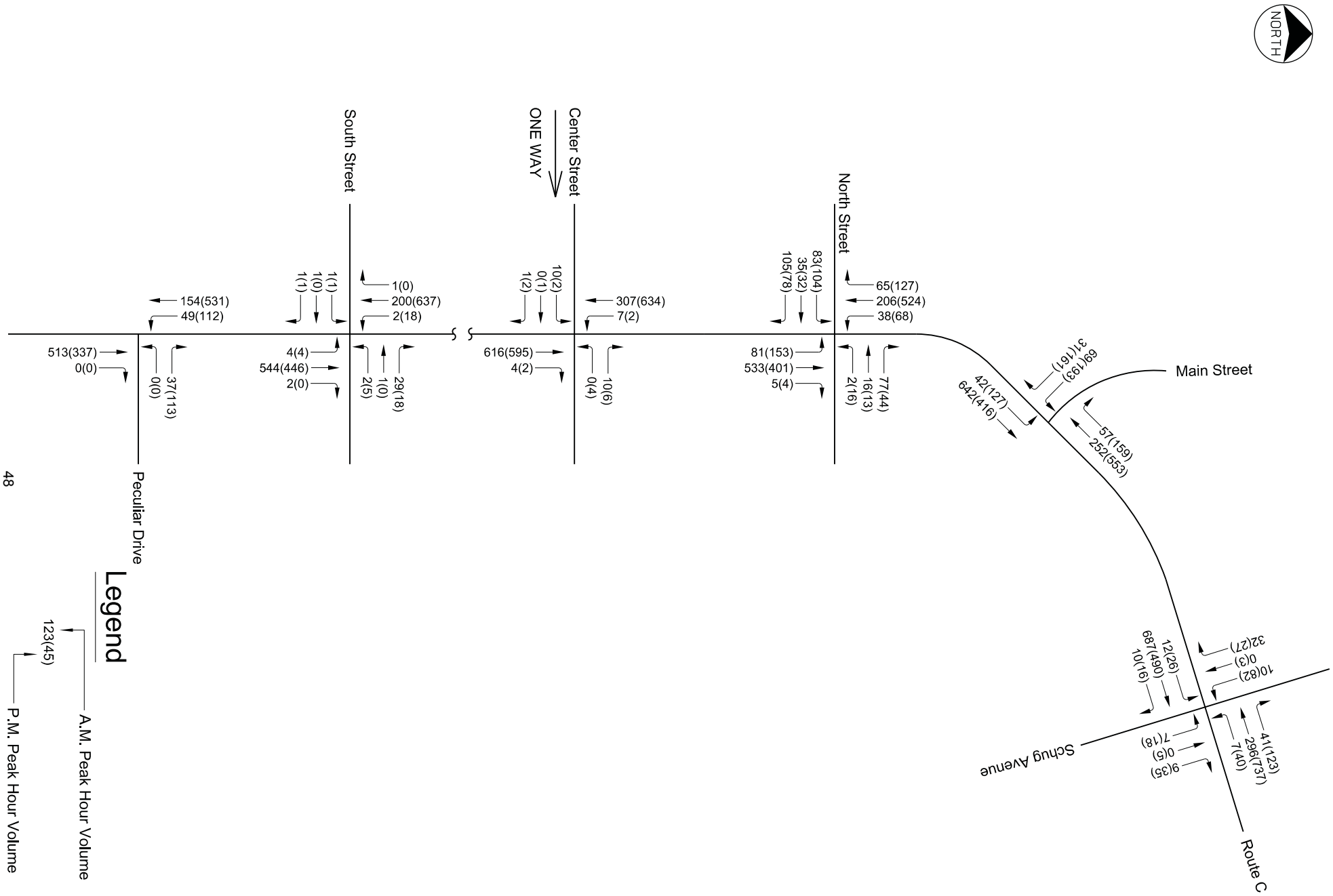



| | | | | |
|---|---|---|---|---|
| TranSystems | FUTURE YEAR 2035<br>PEAK HOUR TRAFFIC VOLUMES | Route C<br>Road Segment Analysis<br>Peculiar, Missouri | JUNE 2015<br>No Scale | Figure A-3 |

| | | | |
|---|---|---|---|
| TranSystems | CRASH LOCATIONS | Route C<br>Road Segment Analysis<br>Peculiar, Missouri | JUNE 2015<br>No Scale |
| | | | Figure A-4 |




| | | | | |
|---|---|---|---|---|
| TranSystems | SHORT TERM IMPROVEMENTS<br>PEAK HOUR TRAFFIC VOLUMES | Route C<br>Road Segment Analysis<br>Peculiar, Missouri | JUNE 2015<br>No Scale | Figure A-5 |




| | | | | |
|---|---|---|---|---|
| TranSystems | LONG TERM IMPROVEMENTS<br>PEAK HOUR TRAFFIC VOLUMES | Route C<br>Road Segment Analysis<br>Peculiar, Missouri | JUNE 2015<br>No Scale | Figure A-6 |

# Appendix B

Trip Generation and Distribution Reports

See Attached Worksheets

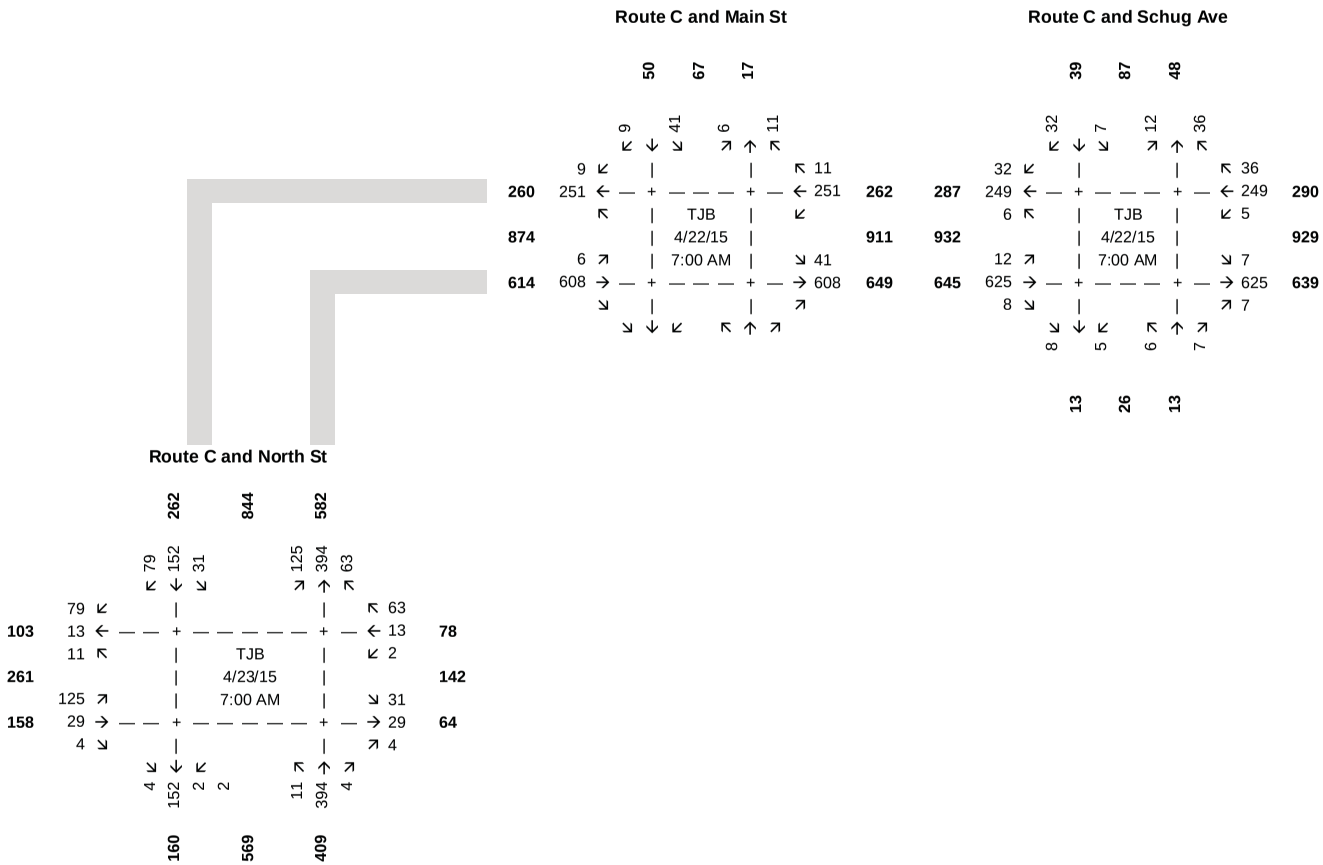
# Route C
## Peculiar, MO
## Trip Generation

| Land Use | Intensity | ITE Code | Daily | A.M. Peak Hour | | | | | P.M. Peak Hour | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Total | % In | % Out | In | Out | Total | % In | % Out | In | Out |
| ***Proposed Development*** | | | | | | | | | | | | | |
| Single-Family Detached Housing (Shadow Gle | 80 du | 210 | 855 | 66 | 25% | 75% | 17 | 50 | 86 | 63% | 37% | 54 | 32 |
| Single-Family Detached Housing (Fox's Den) | 60 du | 210 | 656 | 52 | 25% | 75% | 13 | 39 | 66 | 63% | 37% | 42 | 24 |
| Single-Family Detached Housing (Harper Farm | 250 du | 210 | 2,440 | 185 | 25% | 75% | 46 | 139 | 240 | 63% | 37% | 151 | 89 |
| | ***Residential Subtotal*** | | ***3,951*** | ***303*** | | | ***76*** | ***227*** | ***392*** | | | ***247*** | ***145*** |
| Shopping Center (North) | 110,000 sf | 820 | 7,225 | 165 | 62% | 38% | 102 | 63 | 639 | 48% | 52% | 307 | 332 |
| | ***Retail Subtotal*** | | ***7,225*** | ***165*** | | | ***102*** | ***63*** | ***639*** | | | ***307*** | ***332*** |
| | | ***Total*** | ***11,176*** | ***468*** | | | ***178*** | ***290*** | ***1,031*** | | | ***554*** | ***477*** |

**Notes ~** Estimates based on ITE's Trip Generation, 9th Edition

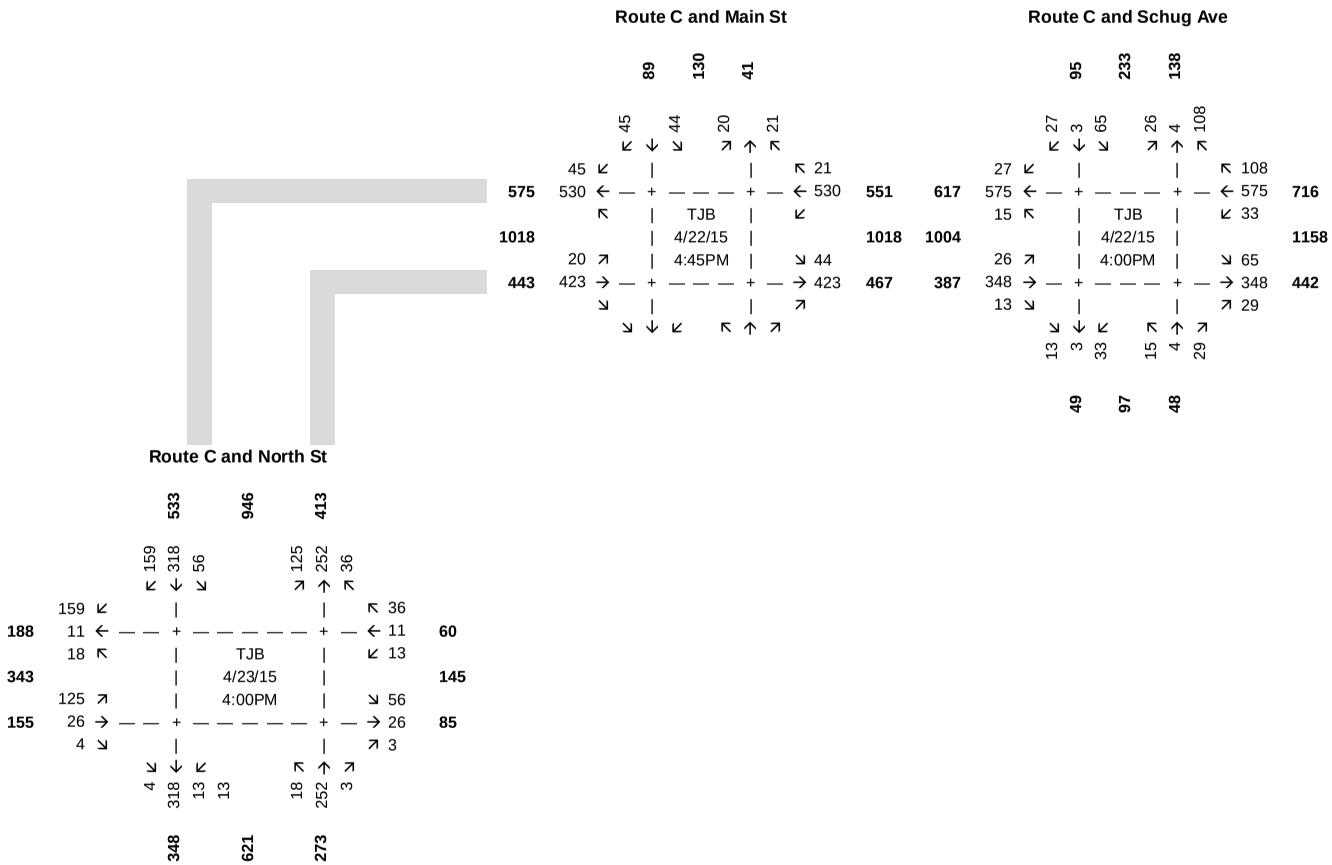
# Route C Teap Study
## Peculiar, MO

## Existing Conditions
## A.M. Peak Hour



# Route C Teap Study
## Peculiar, MO

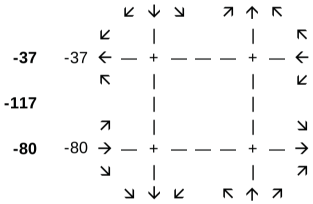
## Existing Conditions
## P.M. Peak Hour



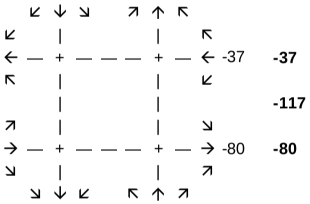
# Route C Teap Study
## Peculiar, MO

## Diversion of Existing Traffic for 211th Street Interchange
## A.M. Peak Hour

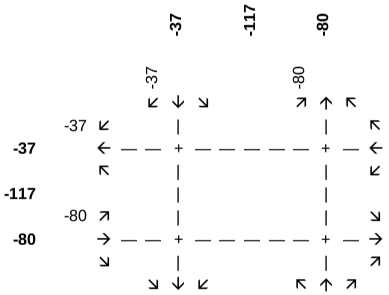
**Route C and Main St**




**Route C and Schug Ave**



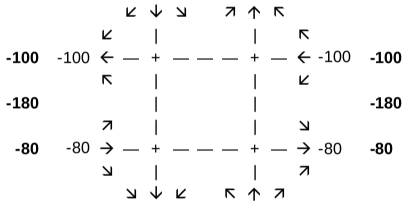

**Route C and North St**



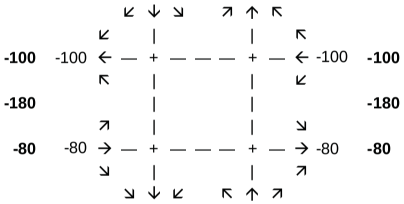
# Route C Teap Study
## Peculiar, MO

## Diversion of Existing Traffic for 211th Street Interchange
## P.M. Peak Hour

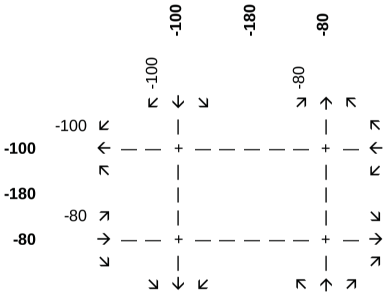
**Route C and Main St**




**Route C and Schug Ave**

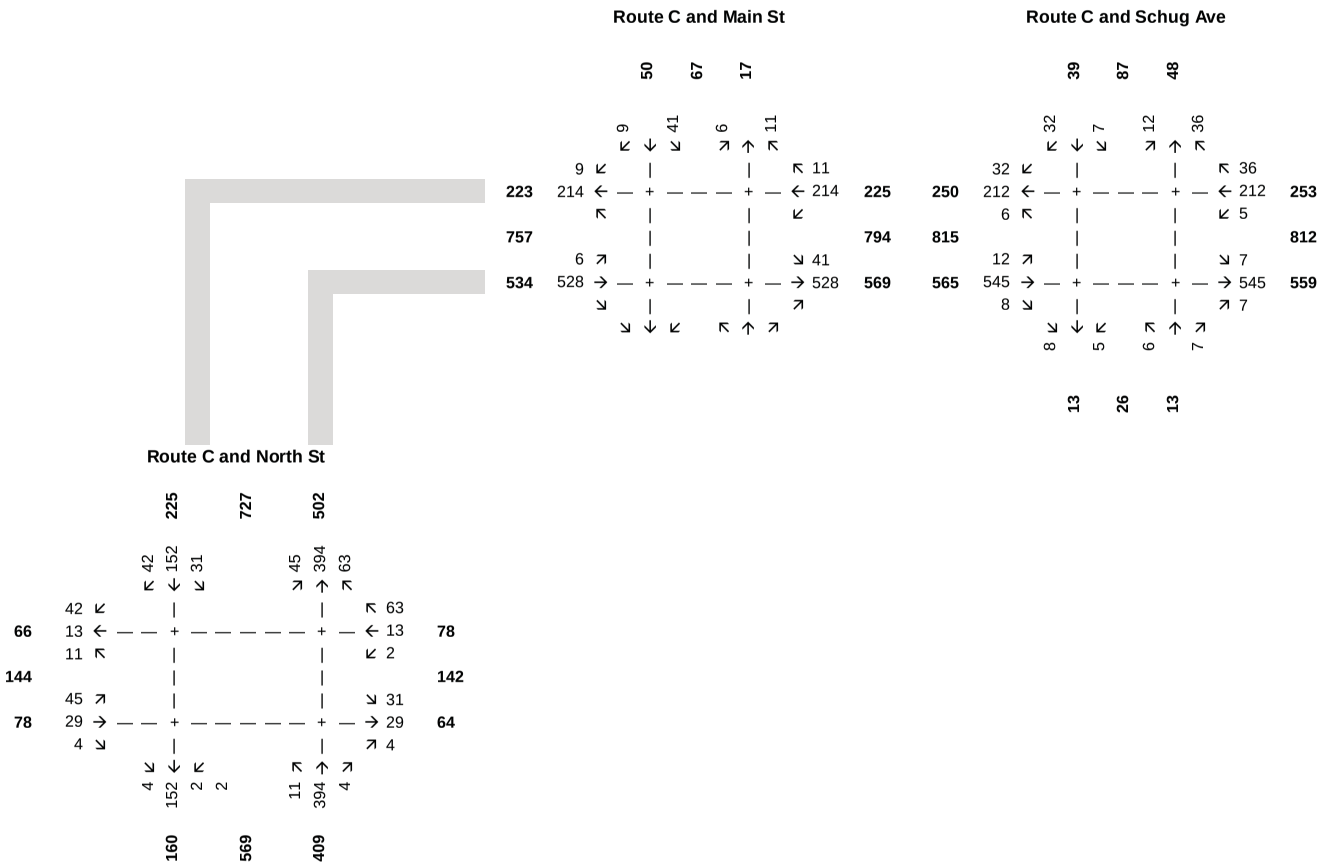



**Route C and North St**



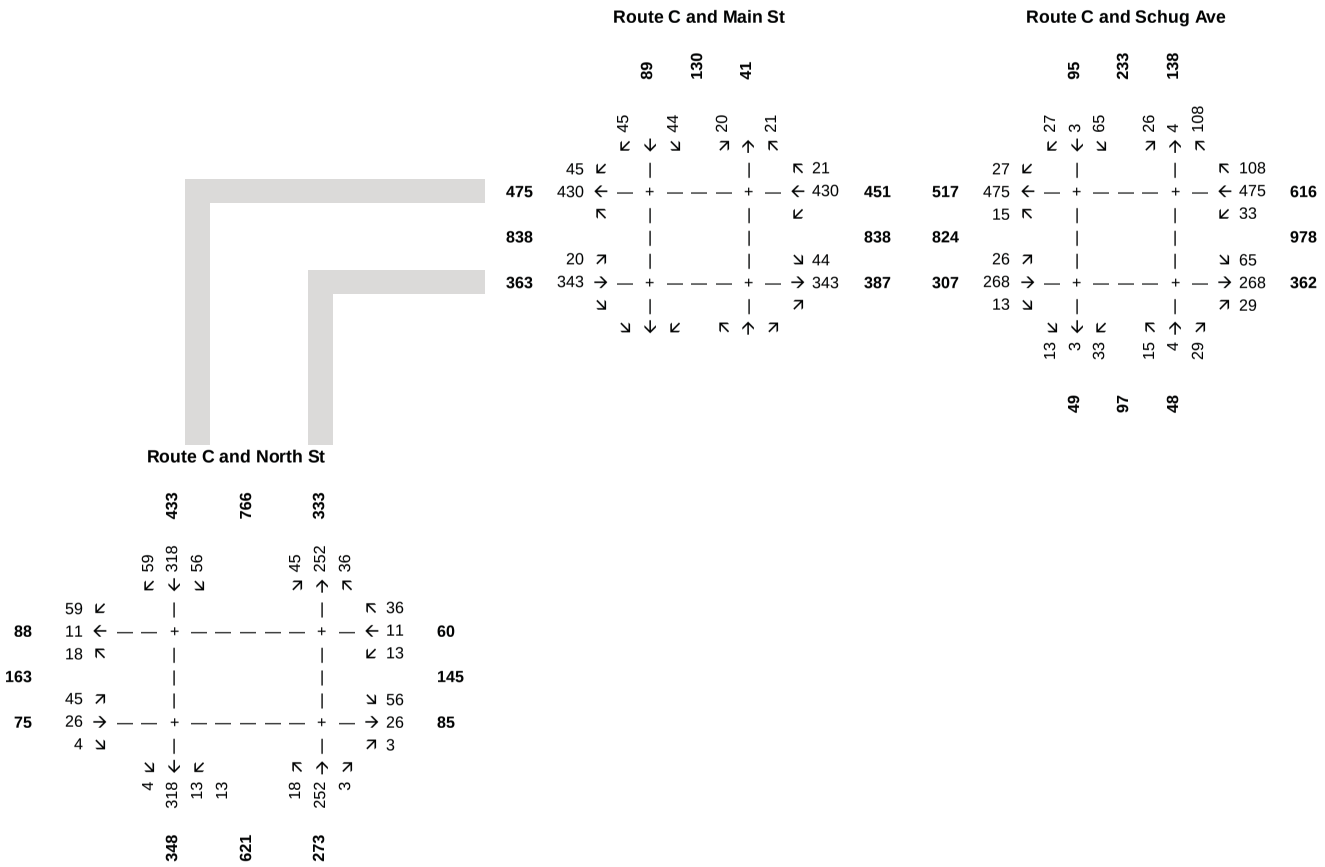
# Route C Teap Study
## Peculiar, MO

## Existing Traffic Volumes with Diversion for 211th Street Interchange
## A.M. Peak Hour



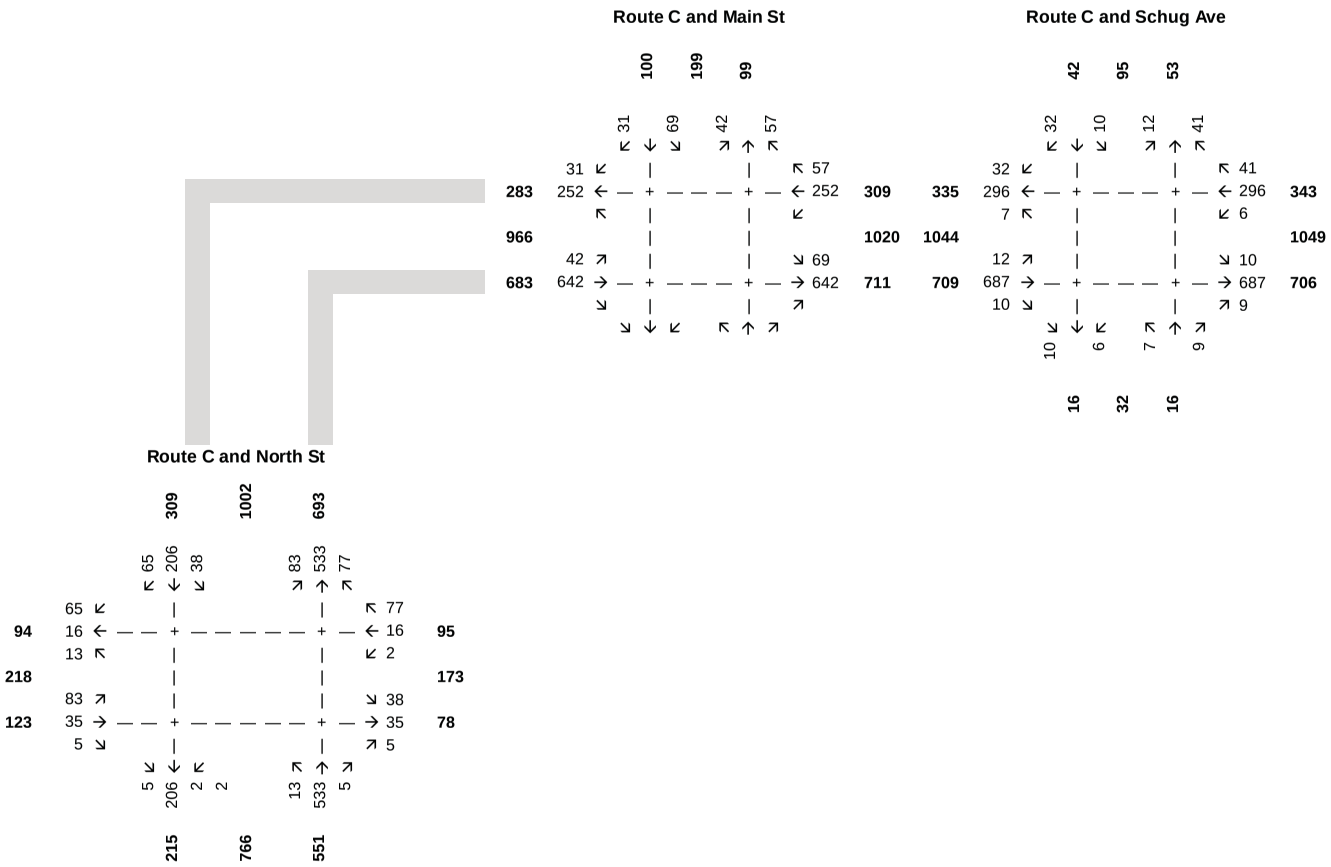
# Route C Teap Study
## Peculiar, MO

## Existing Traffic Volumes with Diversion for 211th Street Interchange
## P.M. Peak Hour



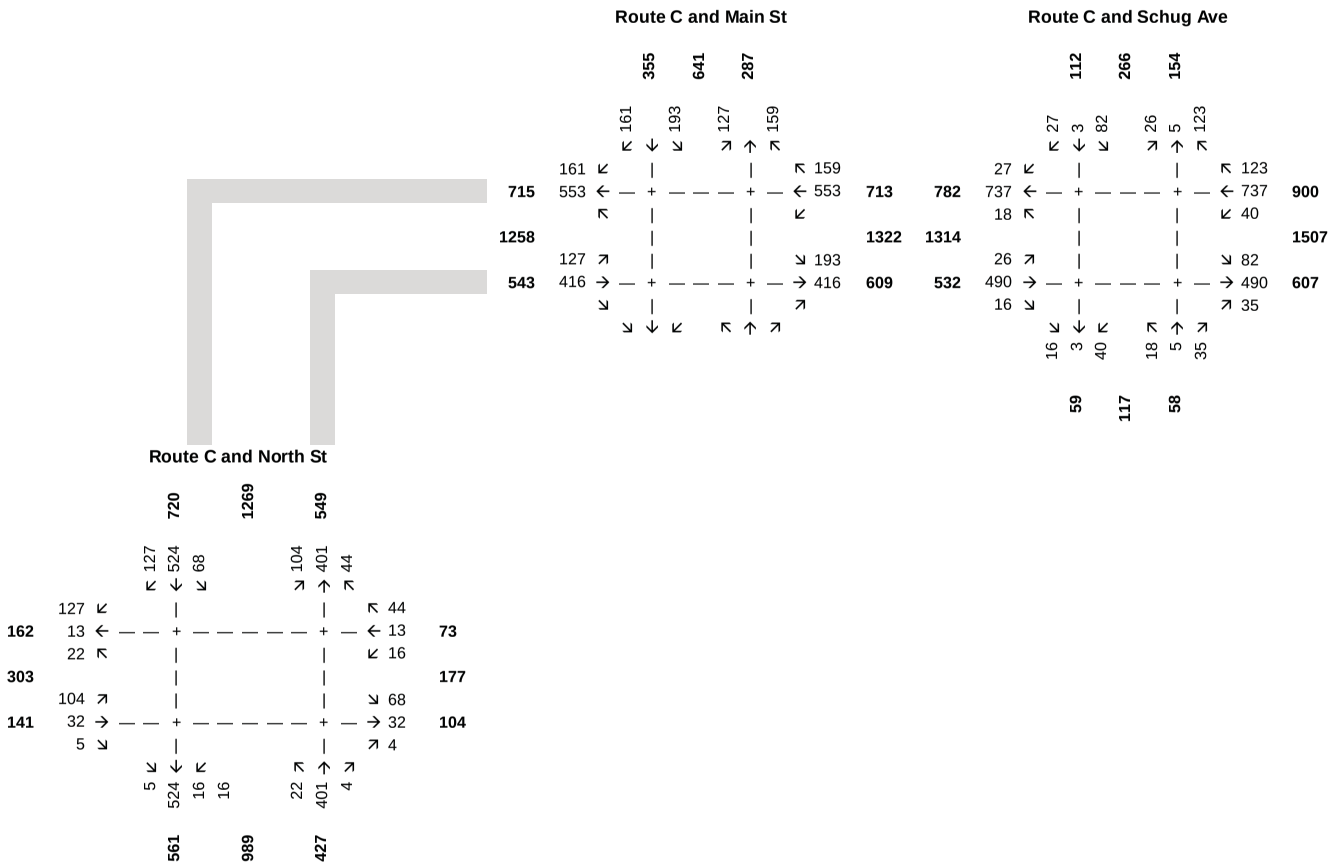
# Route C Teap Study
## Peculiar, MO

## Future Traffic Volume
## A.M. Peak Hour



# Route C Teap Study
## Peculiar, MO

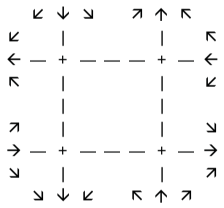
## Future Traffic Volume
## P.M. Peak Hour



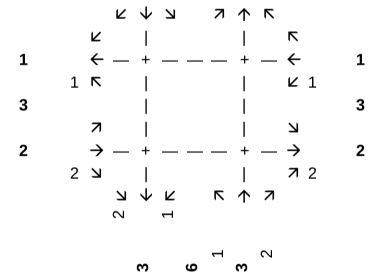
# Route C Teap Study
## Peculiar, MO

## Future Background Growth
## A.M. Peak Hour

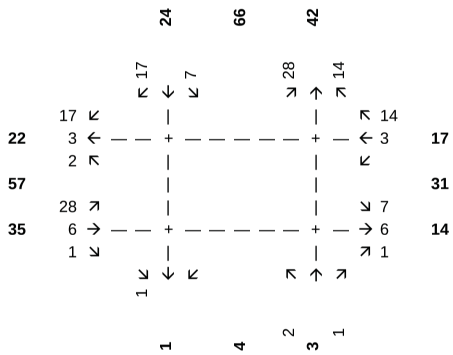
**Route C and Main St**



**Route C and Schug Ave**



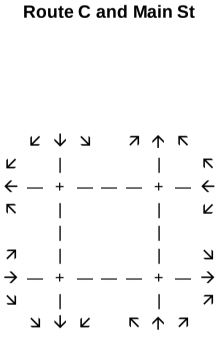

**Route C and North St**

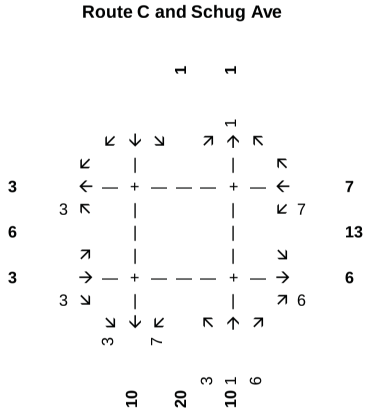


# Route C Teap Study
## Peculiar, MO

## Future Background Growth
## P.M. Peak Hour

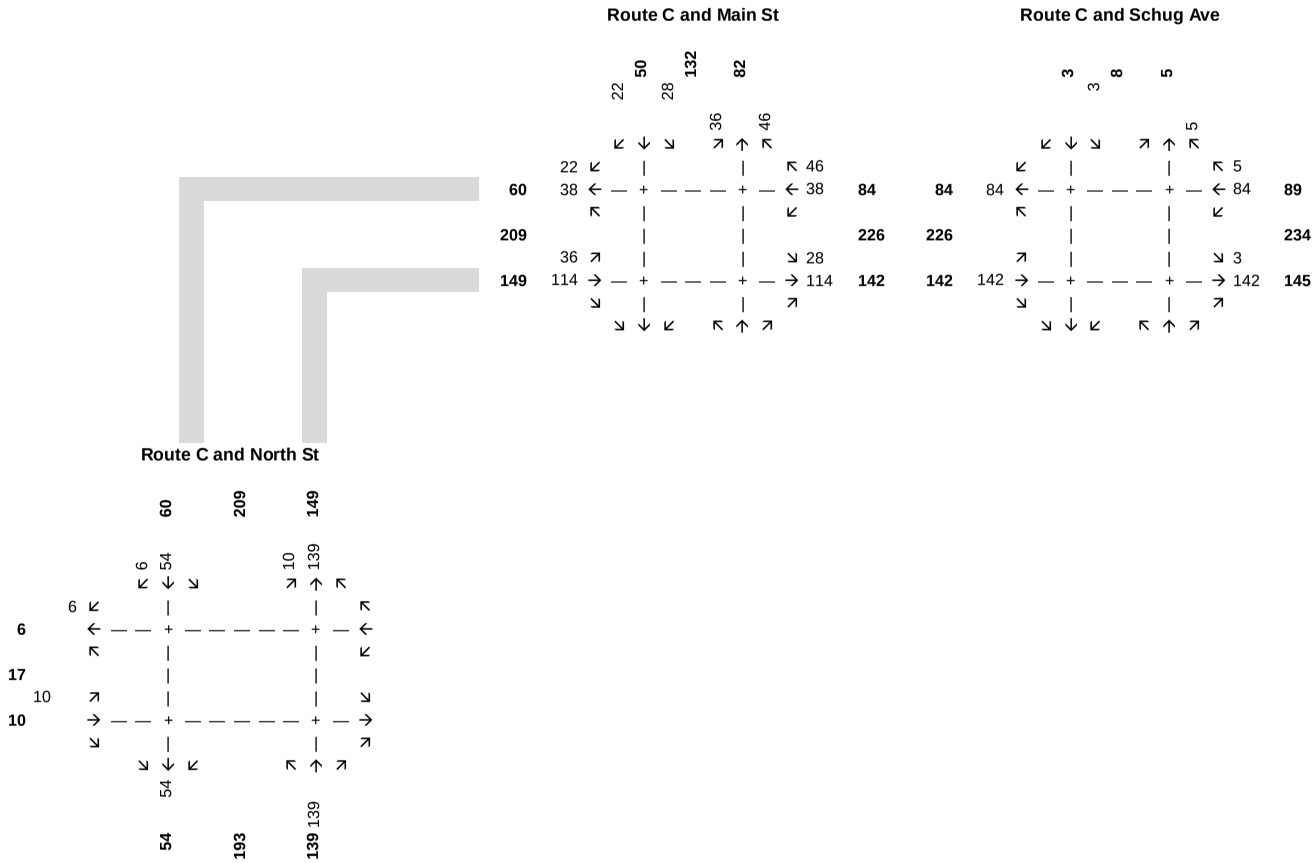


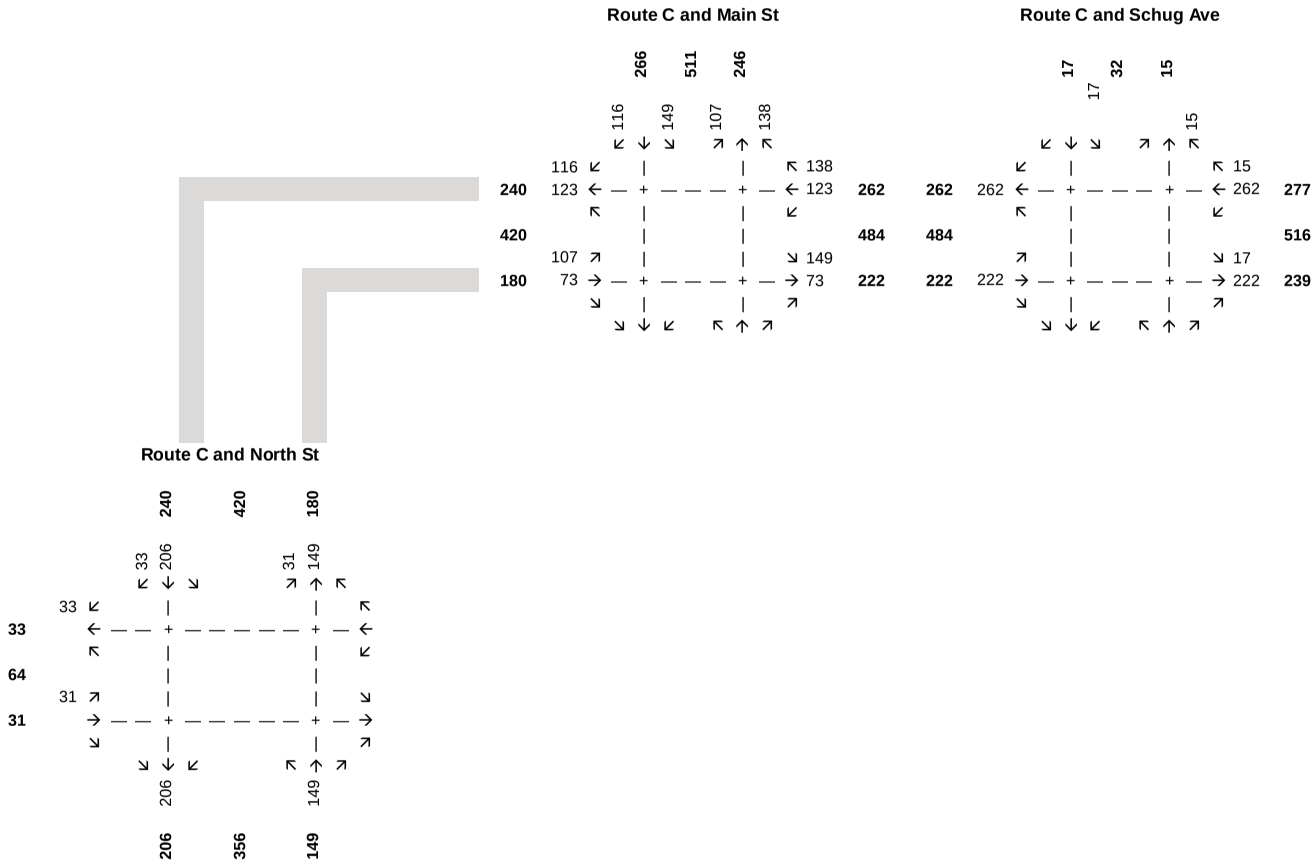
# Route C Teap Study
## Peculiar, MO

## Future Development Trips
## A.M. Peak Hour



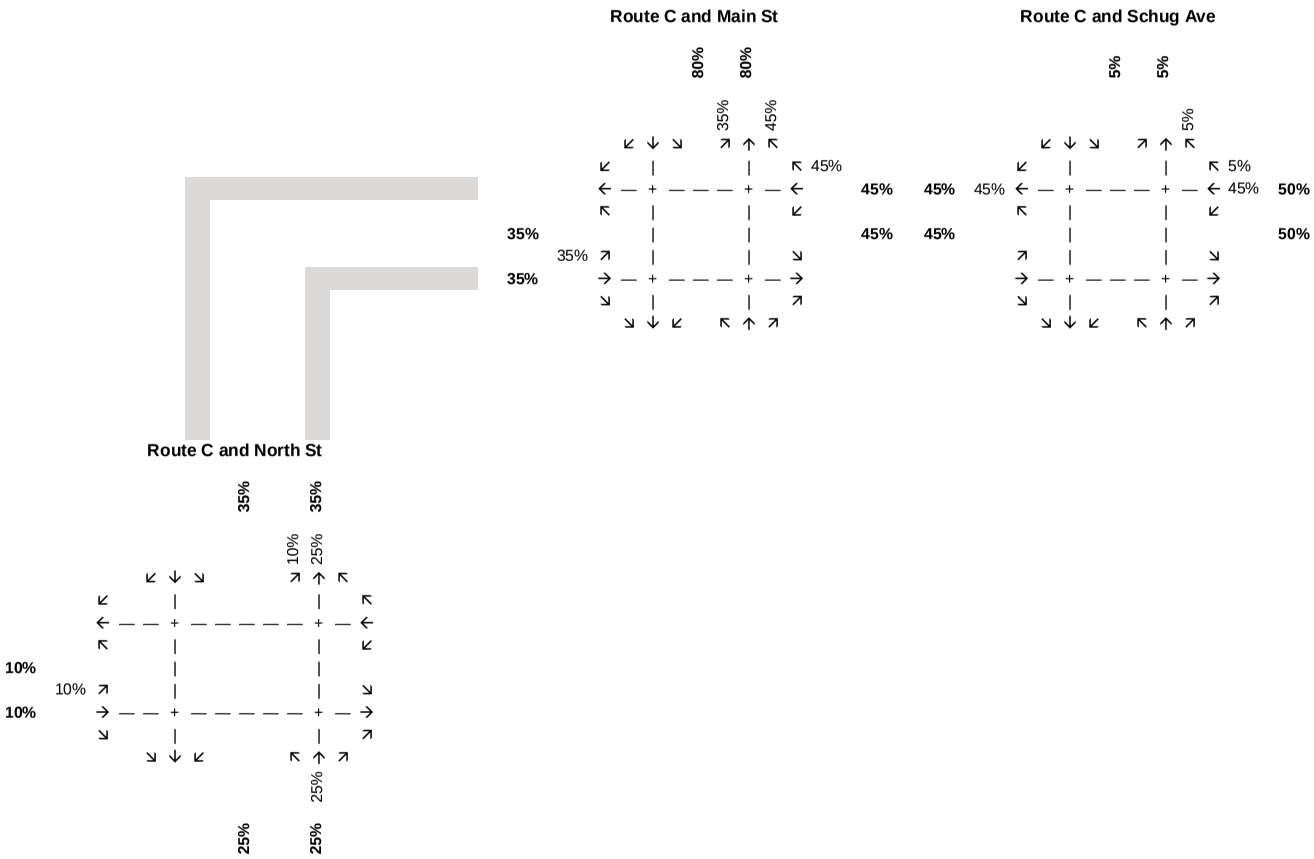
# Route C Teap Study
## Peculiar, MO

## Future Development Trips
## P.M. Peak Hour



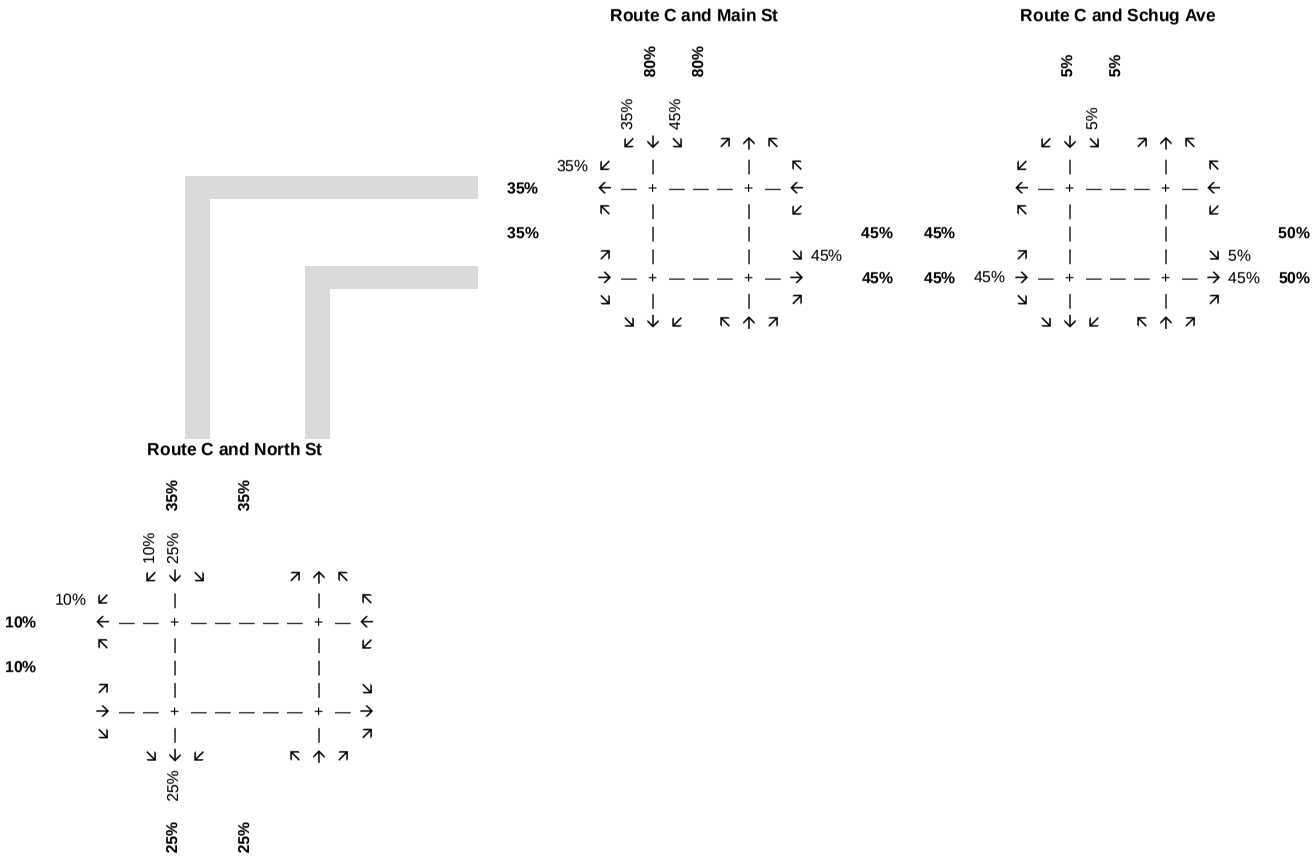
# Route C Teap Study
## Peculiar, MO

## Trip Distribution
## INBOUND - Retail



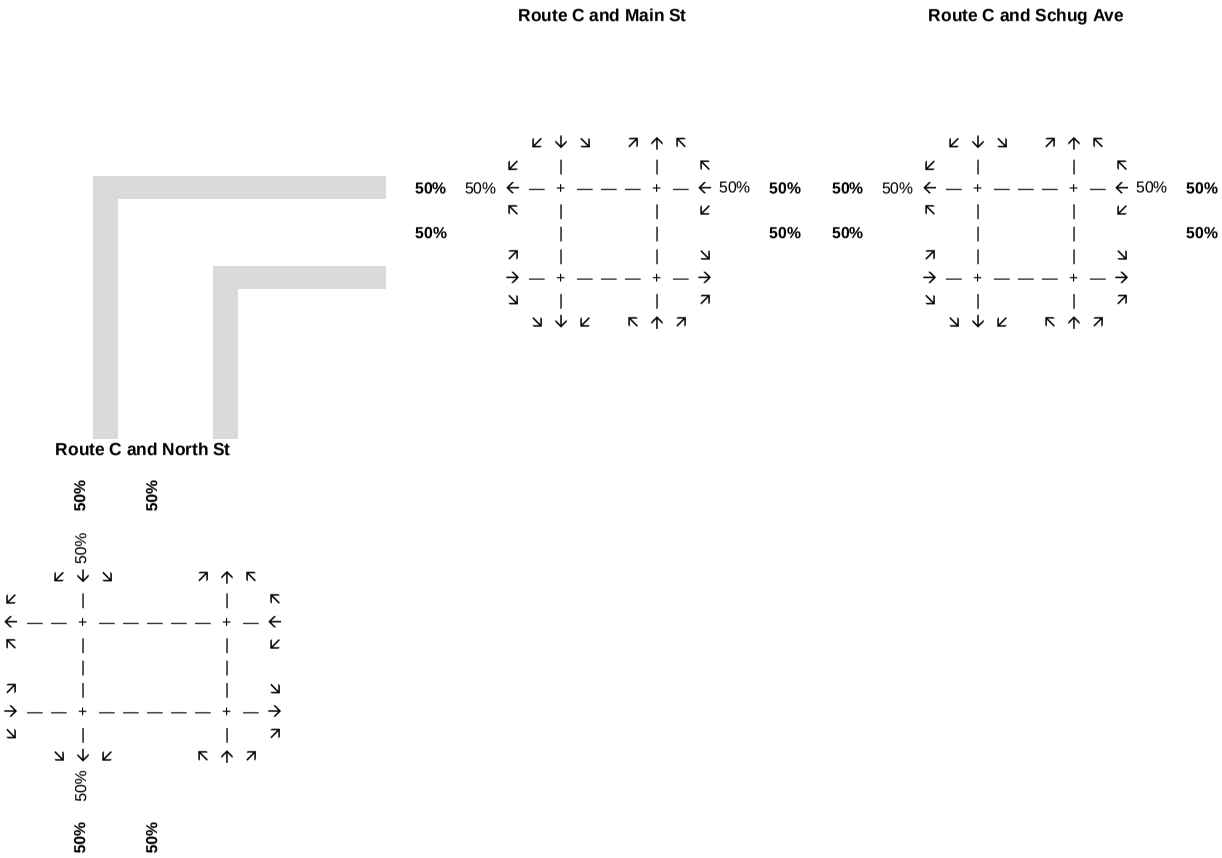
# Route C Teap Study
## Peculiar, MO

## Trip Distribution
## OUTBOUND - Retail



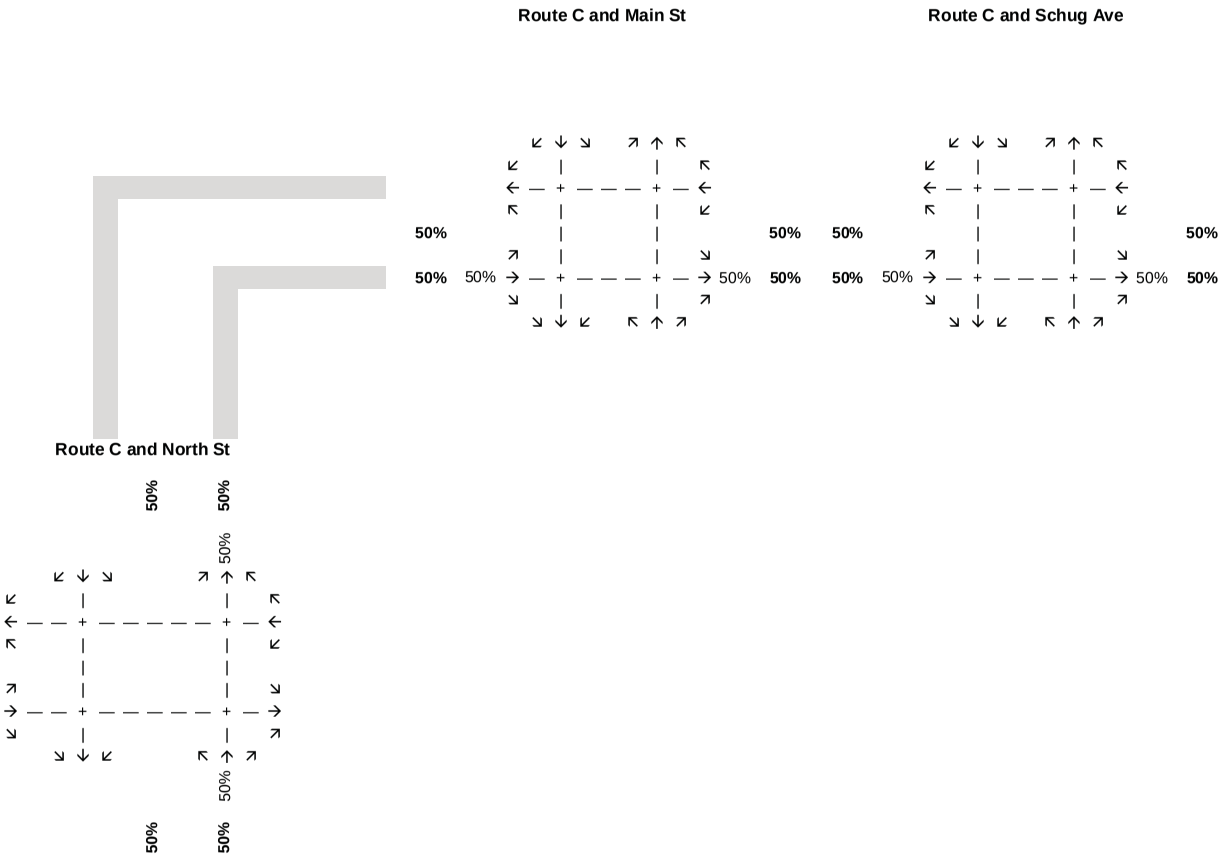
# Route C Teap Study
## Peculiar, MO

## Trip Distribution
## INBOUND - Residential



# Route C Teap Study
## Peculiar, MO

## Trip Distribution
## OUTBOUND - Residental



# Appendix C

Capacity Analysis Reports

See Attached Reports

## HCM Unsignalized Intersection Capacity Analysis
## 1: Schug Avenue & Route C

AM Peak Hour
Existing Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 12 | 625 | 8 | 5 | 249 | 36 | 6 | 0 | 7 | 7 | 0 | 32 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 13 | 694 | 9 | 6 | 277 | 40 | 7 | 0 | 8 | 8 | 0 | 36 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 317 | | | 703 | | | 1069 | 1053 | 699 | 1041 | 1038 | 297 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 317 | | | 703 | | | 1069 | 1053 | 699 | 1041 | 1038 | 297 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 99 | | | 96 | 100 | 98 | 96 | 100 | 95 |
| cM capacity (veh/h) | 1243 | | | 894 | | | 187 | 222 | 440 | 202 | 227 | 743 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 717 | 322 | 14 | 43 |
| Volume Left | 13 | 6 | 7 | 8 |
| Volume Right | 9 | 40 | 8 | 36 |
| cSH | 1243 | 894 | 271 | 501 |
| Volume to Capacity | 0.01 | 0.01 | 0.05 | 0.09 |
| Queue Length 95th (ft) | 1 | 0 | 4 | 7 |
| Control Delay (s) | 0.3 | 0.2 | 19.0 | 12.9 |
| Lane LOS | A | A | C | B |
| Approach Delay (s) | 0.3 | 0.2 | 19.0 | 12.9 |
| Approach LOS | | | C | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 1.0 | | |
| Intersection Capacity Utilization | | 49.8% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |



## HCM Unsignalized Intersection Capacity Analysis
## 2: Route C & Main Street

AM Peak Hour
Existing Conditions

| Movement | EBL2 | EBL | SBL | SBR | SWR | SWR2 |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 6 | 608 | 41 | 9 | 251 | 11 |
| Sign Control | | Free | Stop | | Free | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 7 | 676 | 46 | 10 | 279 | 12 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 291 | | 974 | 285 | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 291 | | 974 | 285 | | |
| tC, single (s) | 4.1 | | 6.4 | 6.2 | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | 3.5 | 3.3 | | |
| p0 queue free % | 99 | | 84 | 99 | | |
| cM capacity (veh/h) | 1271 | | 278 | 754 | | |

| Direction, Lane # | EB 1 | SB 1 | SB 2 | SW 1 |
|---|---|---|---|---|
| Volume Total | 682 | 46 | 10 | 291 |
| Volume Left | 7 | 46 | 0 | 0 |
| Volume Right | 0 | 0 | 10 | 12 |
| cSH | 1271 | 278 | 754 | 1700 |
| Volume to Capacity | 0.01 | 0.16 | 0.01 | 0.17 |
| Queue Length 95th (ft) | 0 | 14 | 1 | 0 |
| Control Delay (s) | 0.1 | 20.5 | 9.8 | 0.0 |
| Lane LOS | A | C | A | |
| Approach Delay (s) | 0.1 | 18.6 | | 0.0 |
| Approach LOS | | C | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 1.1 | | |
| Intersection Capacity Utilization | | 44.0% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

## HCM Unsignalized Intersection Capacity Analysis
## 3: Route C & North Street

AM Peak Hour
Existing Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 125 | 29 | 4 | 2 | 13 | 63 | 11 | 394 | 4 | 31 | 152 | 79 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 139 | 32 | 4 | 2 | 14 | 70 | 12 | 438 | 4 | 34 | 169 | 88 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 823 | 748 | 213 | 767 | 790 | 440 | 257 | | | 442 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 823 | 748 | 213 | 767 | 790 | 440 | 257 | | | 442 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 43 | 90 | 99 | 99 | 95 | 89 | 99 | | | 97 | | |
| cM capacity (veh/h) | 242 | 327 | 827 | 285 | 310 | 617 | 1308 | | | 1118 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 176 | 87 | 454 | 291 |
| Volume Left | 139 | 2 | 12 | 34 |
| Volume Right | 4 | 70 | 4 | 88 |
| cSH | 259 | 516 | 1308 | 1118 |
| Volume to Capacity | 0.68 | 0.17 | 0.01 | 0.03 |
| Queue Length 95th (ft) | 110 | 15 | 1 | 2 |
| Control Delay (s) | 43.7 | 13.4 | 0.3 | 1.3 |
| Lane LOS | E | B | A | A |
| Approach Delay (s) | 43.7 | 13.4 | 0.3 | 1.3 |
| Approach LOS | E | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 9.3 | | |
| Intersection Capacity Utilization | 50.7% | ICU Level of Service | A | |
| Analysis Period (min) | | 15 | | |



## HCM Unsignalized Intersection Capacity Analysis
## 4: Route C & Center Street

AM Peak Hour
Existing Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 8 | 0 | 81 | 0 | 0 | 8 | 56 | 409 | 3 | 4 | 155 | 2 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 9 | 0 | 90 | 0 | 0 | 9 | 62 | 454 | 3 | 4 | 172 | 2 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 772 | 764 | 173 | 853 | 764 | 456 | 174 | | | 458 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 772 | 764 | 173 | 853 | 764 | 456 | 174 | | | 458 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 97 | 100 | 90 | 100 | 100 | 99 | 96 | | | 100 | | |
| cM capacity (veh/h) | 301 | 317 | 870 | 241 | 318 | 604 | 1402 | | | 1103 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 99 | 9 | 520 | 179 |
| Volume Left | 9 | 0 | 62 | 4 |
| Volume Right | 90 | 9 | 3 | 2 |
| cSH | 744 | 604 | 1402 | 1103 |
| Volume to Capacity | 0.13 | 0.01 | 0.04 | 0.00 |
| Queue Length 95th (ft) | 11 | 1 | 3 | 0 |
| Control Delay (s) | 10.6 | 11.0 | 1.3 | 0.2 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 10.6 | 11.0 | 1.3 | 0.2 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 2.3 | | |
| Intersection Capacity Utilization | 55.4% | ICU Level of Service | B | |
| Analysis Period (min) | | 15 | | |

## HCM Unsignalized Intersection Capacity Analysis
## 5: Route C & South Street

AM Peak Hour
Existing Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 1 | 1 | 1 | 5 | 1 | 51 | 3 | 572 | 2 | 42 | 97 | 1 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 1 | 1 | 1 | 6 | 1 | 57 | 3 | 636 | 2 | 47 | 108 | 1 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 902 | 846 | 108 | 847 | 846 | 637 | 109 | | | 638 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 902 | 846 | 108 | 847 | 846 | 637 | 109 | | | 638 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 99 | 100 | 100 | 98 | 100 | 88 | 100 | | | 95 | | |
| cM capacity (veh/h) | 218 | 284 | 945 | 270 | 284 | 477 | 1482 | | | 946 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 3 | 63 | 641 | 156 |
| Volume Left | 1 | 6 | 3 | 47 |
| Volume Right | 1 | 57 | 2 | 1 |
| cSH | 327 | 442 | 1482 | 946 |
| Volume to Capacity | 0.01 | 0.14 | 0.00 | 0.05 |
| Queue Length 95th (ft) | 1 | 12 | 0 | 4 |
| Control Delay (s) | 16.1 | 14.5 | 0.1 | 3.0 |
| Lane LOS | C | B | A | A |
| Approach Delay (s) | 16.1 | 14.5 | 0.1 | 3.0 |
| Approach LOS | C | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 1.7 | | |
| Intersection Capacity Utilization | 48.6% | ICU Level of Service | A | |
| Analysis Period (min) | | 15 | | |



## HCM Unsignalized Intersection Capacity Analysis
## 1: Schug Avenue & Route C

PM Peak Hour
Existing Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 26 | 348 | 13 | 33 | 575 | 108 | 15 | 4 | 29 | 65 | 3 | 27 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 29 | 387 | 14 | 37 | 639 | 120 | 17 | 4 | 32 | 72 | 3 | 30 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 759 | | | 401 | | | 1256 | 1284 | 394 | 1258 | 1231 | 699 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 759 | | | 401 | | | 1256 | 1284 | 394 | 1258 | 1231 | 699 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 97 | | | 97 | | | 87 | 97 | 95 | 45 | 98 | 93 |
| cM capacity (veh/h) | 853 | | | 1158 | | | 129 | 154 | 655 | 131 | 166 | 440 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 430 | 796 | 53 | 106 |
| Volume Left | 29 | 37 | 17 | 72 |
| Volume Right | 14 | 120 | 32 | 30 |
| cSH | 853 | 1158 | 258 | 165 |
| Volume to Capacity | 0.03 | 0.03 | 0.21 | 0.64 |
| Queue Length 95th (ft) | 3 | 2 | 19 | 90 |
| Control Delay (s) | 1.0 | 0.8 | 22.6 | 59.5 |
| Lane LOS | A | A | C | F |
| Approach Delay (s) | 1.0 | 0.8 | 22.6 | 59.5 |
| Approach LOS | | | C | F |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 6.2 | | |
| Intersection Capacity Utilization | 63.7% | ICU Level of Service | B | |
| Analysis Period (min) | | 15 | | |

| Movement | EBL2 | EBL | SBL | SBR | SWR | SWR2 |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Volume (veh/h) | 20 | 423 | 44 | 45 | 530 | 21 |
| Sign Control | | Free | Stop | | Free | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 22 | 470 | 49 | 50 | 589 | 23 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 612 | | 1115 | 601 | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 612 | | 1115 | 601 | | |
| tC, single (s) | 4.1 | | 6.4 | 6.2 | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | 3.5 | 3.3 | | |
| p0 queue free % | 98 | | 78 | 90 | | |
| cM capacity (veh/h) | 967 | | 225 | 501 | | |

| Direction, Lane # | EB 1 | SB 1 | SB 2 | SW 1 |
|---|---|---|---|---|
| Volume Total | 492 | 49 | 50 | 612 |
| Volume Left | 22 | 49 | 0 | 0 |
| Volume Right | 0 | 0 | 50 | 23 |
| cSH | 967 | 225 | 501 | 1700 |
| Volume to Capacity | 0.02 | 0.22 | 0.10 | 0.36 |
| Queue Length 95th (ft) | 2 | 20 | 8 | 0 |
| Control Delay (s) | 0.7 | 25.4 | 13.0 | 0.0 |
| Lane LOS | A | D | B | |
| Approach Delay (s) | 0.7 | 19.1 | | 0.0 |
| Approach LOS | | C | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 1.8 | | |
| Intersection Capacity Utilization | | 44.1% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |





| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 125 | 26 | 4 | 13 | 11 | 36 | 18 | 252 | 3 | 56 | 318 | 159 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 139 | 29 | 4 | 14 | 12 | 40 | 20 | 280 | 3 | 62 | 353 | 177 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 934 | 889 | 442 | 907 | 976 | 282 | 530 | | | 283 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 934 | 889 | 442 | 907 | 976 | 282 | 530 | | | 283 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 35 | 89 | 99 | 93 | 95 | 95 | 98 | | | 95 | | |
| cM capacity (veh/h) | 212 | 263 | 616 | 222 | 234 | 757 | 1037 | | | 1279 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 172 | 67 | 303 | 592 |
| Volume Left | 139 | 14 | 20 | 62 |
| Volume Right | 4 | 40 | 3 | 177 |
| cSH | 223 | 392 | 1037 | 1279 |
| Volume to Capacity | 0.77 | 0.17 | 0.02 | 0.05 |
| Queue Length 95th (ft) | 136 | 15 | 1 | 4 |
| Control Delay (s) | 60.4 | 16.1 | 0.7 | 1.3 |
| Lane LOS | F | C | A | A |
| Approach Delay (s) | 60.4 | 16.1 | 0.7 | 1.3 |
| Approach LOS | F | C | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 11.0 | | |
| Intersection Capacity Utilization | | 65.8% | ICU Level of Service | C |
| Analysis Period (min) | | 15 | | |

## HCM Unsignalized Intersection Capacity Analysis
## 4: Route C & Center Street

PM Peak Hour
Existing Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 2 | 1 | 60 | 3 | 0 | 5 | 107 | 258 | 2 | 2 | 355 | 3 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 2 | 1 | 67 | 3 | 0 | 6 | 119 | 287 | 2 | 2 | 394 | 3 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 932 | 927 | 396 | 993 | 928 | 288 | 398 | | | 289 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 932 | 927 | 396 | 993 | 928 | 288 | 398 | | | 289 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 99 | 100 | 90 | 98 | 100 | 99 | 90 | | | 100 | | |
| cM capacity (veh/h) | 226 | 240 | 653 | 185 | 240 | 751 | 1161 | | | 1273 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 70 | 9 | 408 | 400 |
| Volume Left | 2 | 3 | 119 | 2 |
| Volume Right | 67 | 6 | 2 | 3 |
| cSH | 601 | 349 | 1161 | 1273 |
| Volume to Capacity | 0.12 | 0.03 | 0.10 | 0.00 |
| Queue Length 95th (ft) | 10 | 2 | 9 | 0 |
| Control Delay (s) | 11.8 | 15.6 | 3.2 | 0.1 |
| Lane LOS | B | C | A | A |
| Approach Delay (s) | 11.8 | 15.6 | 3.2 | 0.1 |
| Approach LOS | B | C | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 2.6 | | |
| Intersection Capacity Utilization | 52.5% | ICU Level of Service | A | |
| Analysis Period (min) | | 15 | | |



## HCM Unsignalized Intersection Capacity Analysis
## 5: Route C & South Street

PM Peak Hour
Existing Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Volume (veh/h) | 1 | 0 | 1 | 4 | 0 | 108 | 3 | 184 | 0 | 106 | 319 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 1 | 0 | 1 | 4 | 0 | 120 | 3 | 204 | 0 | 118 | 354 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 921 | 801 | 354 | 802 | 801 | 204 | 354 | | | 204 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 921 | 801 | 354 | 802 | 801 | 204 | 354 | | | 204 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 99 | 100 | 100 | 98 | 100 | 86 | 100 | | | 91 | | |
| cM capacity (veh/h) | 200 | 289 | 689 | 281 | 289 | 836 | 1204 | | | 1367 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 2 | 124 | 208 | 472 |
| Volume Left | 1 | 4 | 3 | 118 |
| Volume Right | 1 | 120 | 0 | 0 |
| cSH | 311 | 781 | 1204 | 1367 |
| Volume to Capacity | 0.01 | 0.16 | 0.00 | 0.09 |
| Queue Length 95th (ft) | 1 | 14 | 0 | 7 |
| Control Delay (s) | 16.7 | 10.5 | 0.2 | 2.6 |
| Lane LOS | C | B | A | A |
| Approach Delay (s) | 16.7 | 10.5 | 0.2 | 2.6 |
| Approach LOS | C | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 3.2 | | |
| Intersection Capacity Utilization | 49.4% | ICU Level of Service | A | |
| Analysis Period (min) | | 15 | | |

## HCM Unsignalized Intersection Capacity Analysis
## 1: Schug Avenue & Route C

PM Peak Hour
Future Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 12 | 687 | 10 | 7 | 296 | 41 | 7 | 0 | 9 | 10 | 0 | 32 |
| Future Volume (Veh/h) | 12 | 687 | 10 | 7 | 296 | 41 | 7 | 0 | 9 | 10 | 0 | 32 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 13 | 763 | 11 | 8 | 329 | 46 | 8 | 0 | 10 | 11 | 0 | 36 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 375 | | | 774 | | | 1198 | 1186 | 768 | 1172 | 1168 | 352 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 375 | | | 774 | | | 1198 | 1186 | 768 | 1172 | 1168 | 352 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 99 | | | 95 | 100 | 98 | 93 | 100 | 95 |
| cM capacity (veh/h) | 1183 | | | 842 | | | 151 | 185 | 401 | 162 | 189 | 692 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 787 | 383 | 18 | 47 |
| Volume Left | 13 | 8 | 8 | 11 |
| Volume Right | 11 | 46 | 10 | 36 |
| cSH | 1183 | 842 | 232 | 392 |
| Volume to Capacity | 0.01 | 0.01 | 0.08 | 0.12 |
| Queue Length 95th (ft) | 1 | 1 | 6 | 10 |
| Control Delay (s) | 0.3 | 0.3 | 21.9 | 15.4 |
| Lane LOS | A | A | C | C |
| Approach Delay (s) | 0.3 | 0.3 | 21.9 | 15.4 |
| Approach LOS | | | C | C |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 1.2 | | |
| Intersection Capacity Utilization | | 52.8% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |



## HCM Unsignalized Intersection Capacity Analysis
## 2: Route C & Main Street

PM Peak Hour
Future Conditions

| Movement | EBL2 | EBL | SBL | SBR | SWR | SWR2 |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 42 | 642 | 69 | 31 | 57 | 252 |
| Future Volume (Veh/h) | 42 | 642 | 69 | 31 | 57 | 252 |
| Sign Control | | Free | Stop | | Free | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 47 | 713 | 77 | 34 | 63 | 280 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 343 | | 1010 | 203 | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 343 | | 1010 | 203 | | |
| tC, single (s) | 4.1 | | 6.4 | 6.2 | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | 3.5 | 3.3 | | |
| p0 queue free % | 96 | | 70 | 96 | | |
| cM capacity (veh/h) | 1216 | | 256 | 838 | | |

| Direction, Lane # | EB 1 | SB 1 | SB 2 | SW 1 |
|---|---|---|---|---|
| Volume Total | 760 | 77 | 34 | 343 |
| Volume Left | 47 | 77 | 0 | 0 |
| Volume Right | 0 | 0 | 34 | 280 |
| cSH | 1216 | 256 | 838 | 1700 |
| Volume to Capacity | 0.04 | 0.30 | 0.04 | 0.20 |
| Queue Length 95th (ft) | 3 | 31 | 3 | 0 |
| Control Delay (s) | 1.0 | 25.0 | 9.5 | 0.0 |
| Lane LOS | A | D | A | |
| Approach Delay (s) | 1.0 | 20.3 | | 0.0 |
| Approach LOS | | C | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 2.5 | | |
| Intersection Capacity Utilization | | 48.4% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

## HCM Unsignalized Intersection Capacity Analysis
## 3: Route C & North Street

PM Peak Hour
Future Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 83 | 35 | 5 | 2 | 16 | 77 | 13 | 533 | 5 | 38 | 206 | 65 |
| Future Volume (Veh/h) | 83 | 35 | 5 | 2 | 16 | 77 | 13 | 533 | 5 | 38 | 206 | 65 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 92 | 39 | 6 | 2 | 18 | 86 | 14 | 592 | 6 | 42 | 229 | 72 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1067 | 975 | 265 | 998 | 1008 | 595 | 301 | | | 598 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1067 | 975 | 265 | 998 | 1008 | 595 | 301 | | | 598 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 38 | 84 | 99 | 99 | 92 | 83 | 99 | | | 96 | | |
| cM capacity (veh/h) | 149 | 238 | 774 | 186 | 228 | 504 | 1260 | | | 979 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 137 | 106 | 612 | 343 |
| Volume Left | 92 | 2 | 14 | 42 |
| Volume Right | 6 | 86 | 6 | 72 |
| cSH | 174 | 407 | 1260 | 979 |
| Volume to Capacity | 0.79 | 0.26 | 0.01 | 0.04 |
| Queue Length 95th (ft) | 131 | 26 | 1 | 3 |
| Control Delay (s) | 76.0 | 16.9 | 0.3 | 1.5 |
| Lane LOS | F | C | A | A |
| Approach Delay (s) | 76.0 | 16.9 | 0.3 | 1.5 |
| Approach LOS | F | C | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | | 10.8 | |
| Intersection Capacity Utilization | | | 55.1% | ICU Level of Service |
| Analysis Period (min) | | | 15 | |



## HCM Unsignalized Intersection Capacity Analysis
## 4: Route C & Center Street

PM Peak Hour
Future Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 10 | 2 | 99 | 0 | 0 | 10 | 68 | 548 | 4 | 5 | 209 | 2 |
| Future Volume (Veh/h) | 10 | 2 | 99 | 0 | 0 | 10 | 68 | 548 | 4 | 5 | 209 | 2 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 11 | 2 | 110 | 0 | 0 | 11 | 76 | 609 | 4 | 6 | 232 | 2 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1019 | 1010 | 233 | 1119 | 1009 | 611 | 234 | | | 613 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1019 | 1010 | 233 | 1119 | 1009 | 611 | 234 | | | 613 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 95 | 99 | 86 | 100 | 100 | 98 | 94 | | | 99 | | |
| cM capacity (veh/h) | 200 | 225 | 806 | 150 | 225 | 494 | 1333 | | | 966 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 123 | 11 | 689 | 240 |
| Volume Left | 11 | 0 | 76 | 6 |
| Volume Right | 110 | 11 | 4 | 2 |
| cSH | 614 | 494 | 1333 | 966 |
| Volume to Capacity | 0.20 | 0.02 | 0.06 | 0.01 |
| Queue Length 95th (ft) | 19 | 2 | 5 | 0 |
| Control Delay (s) | 12.3 | 12.5 | 1.5 | 0.3 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 12.3 | 12.5 | 1.5 | 0.3 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | | 2.6 | |
| Intersection Capacity Utilization | | | 67.7% | ICU Level of Service |
| Analysis Period (min) | | | 15 | |

## HCM Unsignalized Intersection Capacity Analysis
## 5: Route C & South Street

PM Peak Hour
Future Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 1 | 1 | 2 | 5 | 62 | 0 | 511 | 2 | 51 | 151 | 1 |
| Future Volume (Veh/h) | 1 | 1 | 1 | 2 | 5 | 62 | 0 | 511 | 2 | 51 | 151 | 1 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 1 | 1 | 1 | 2 | 6 | 69 | 0 | 568 | 2 | 57 | 168 | 1 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 924 | 852 | 168 | 853 | 852 | 569 | 169 | | | 570 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 924 | 852 | 168 | 853 | 852 | 569 | 169 | | | 570 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 99 | 98 | 87 | 100 | | | 94 | | |
| cM capacity (veh/h) | 204 | 280 | 876 | 266 | 280 | 522 | 1409 | | | 1002 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 3 | 77 | 570 | 226 |
| Volume Left | 1 | 2 | 0 | 57 |
| Volume Right | 1 | 69 | 2 | 1 |
| cSH | 312 | 478 | 1409 | 1002 |
| Volume to Capacity | 0.01 | 0.16 | 0.00 | 0.06 |
| Queue Length 95th (ft) | 1 | 14 | 0 | 5 |
| Control Delay (s) | 16.6 | 14.0 | 0.0 | 2.6 |
| Lane LOS | C | B | | A |
| Approach Delay (s) | 16.6 | 14.0 | 0.0 | 2.6 |
| Approach LOS | C | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | | 2.0 | |
| Intersection Capacity Utilization | | 52.1% | ICU Level of Service A |
| Analysis Period (min) | | 15 | |



## HCM Unsignalized Intersection Capacity Analysis
## 1: Schug Avenue & Route C

PM Peak Hour
Future Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 26 | 490 | 16 | 40 | 737 | 123 | 18 | 5 | 35 | 82 | 3 | 27 |
| Future Volume (Veh/h) | 26 | 490 | 16 | 40 | 737 | 123 | 18 | 5 | 35 | 82 | 3 | 27 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 29 | 544 | 18 | 44 | 819 | 137 | 20 | 6 | 39 | 91 | 3 | 30 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 956 | | | 562 | | | 1618 | 1655 | 553 | 1628 | 1596 | 888 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 956 | | | 562 | | | 1618 | 1655 | 553 | 1628 | 1596 | 888 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 96 | | | 96 | | | 71 | 93 | 93 | 0 | 97 | 91 |
| cM capacity (veh/h) | 719 | | | 1009 | | | 69 | 90 | 533 | 67 | 98 | 343 |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 591 | 1000 | 65 | 124 |
| Volume Left | 29 | 44 | 20 | 91 |
| Volume Right | 18 | 137 | 39 | 30 |
| cSH | 719 | 1009 | 152 | 84 |
| Volume to Capacity | 0.04 | 0.04 | 0.43 | 1.47 |
| Queue Length 95th (ft) | 3 | 3 | 48 | 243 |
| Control Delay (s) | 1.1 | 1.2 | 45.4 | 351.7 |
| Lane LOS | A | A | E | F |
| Approach Delay (s) | 1.1 | 1.2 | 45.4 | 351.7 |
| Approach LOS | | | E | F |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | | 27.2 | |
| Intersection Capacity Utilization | | 79.8% | ICU Level of Service D |
| Analysis Period (min) | | 15 | |

## HCM Unsignalized Intersection Capacity Analysis
## 2: Route C & Main Street

PM Peak Hour
Future Conditions

| Movement | EBL2 | EBL | SBL | SBR | SWR | SWR2 |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 127 | 416 | 193 | 161 | 553 | 159 |
| Future Volume (Veh/h) | 127 | 416 | 193 | 161 | 553 | 159 |
| Sign Control | | Free | Stop | | Free | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 141 | 462 | 214 | 179 | 614 | 177 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 791 | | 1446 | 702 | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 791 | | 1446 | 702 | | |
| tC, single (s) | 4.1 | | 6.4 | 6.2 | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | 3.5 | 3.3 | | |
| p0 queue free % | 83 | | 0 | 59 | | |
| cM capacity (veh/h) | 829 | | 120 | 438 | | |

| Direction, Lane # | EB 1 | SB 1 | SB 2 | SW 1 |
|---|---|---|---|---|
| Volume Total | 603 | 214 | 179 | 791 |
| Volume Left | 141 | 214 | 0 | 0 |
| Volume Right | 0 | 0 | 179 | 177 |
| cSH | 829 | 120 | 438 | 1700 |
| Volume to Capacity | 0.17 | 1.78 | 0.41 | 0.47 |
| Queue Length 95th (ft) | 15 | 414 | 49 | 0 |
| Control Delay (s) | 4.2 | 444.2 | 18.8 | 0.0 |
| Lane LOS | A | F | C | |
| Approach Delay (s) | 4.2 | 250.4 | | 0.0 |
| Approach LOS | | F | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | | 56.5 | |
| Intersection Capacity Utilization | | 60.7% | ICU Level of Service B |
| Analysis Period (min) | | 15 | |



## HCM Unsignalized Intersection Capacity Analysis
## 3: Route C & North Street

PM Peak Hour
Future Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 104 | 32 | 5 | 16 | 13 | 44 | 22 | 401 | 4 | 68 | 524 | 127 |
| Future Volume (Veh/h) | 104 | 32 | 5 | 16 | 13 | 44 | 22 | 401 | 4 | 68 | 524 | 127 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 116 | 36 | 6 | 18 | 14 | 49 | 24 | 446 | 4 | 76 | 582 | 141 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1356 | 1302 | 652 | 1324 | 1371 | 448 | 723 | | | 450 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1356 | 1302 | 652 | 1324 | 1371 | 448 | 723 | | | 450 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 0 | 75 | 99 | 82 | 89 | 92 | 97 | | | 93 | | |
| cM capacity (veh/h) | 99 | 146 | 468 | 99 | 132 | 611 | 879 | | | 1110 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 158 | 81 | 474 | 799 |
| Volume Left | 116 | 18 | 24 | 76 |
| Volume Right | 6 | 49 | 4 | 141 |
| cSH | 111 | 220 | 879 | 1110 |
| Volume to Capacity | 1.43 | 0.37 | 0.03 | 0.07 |
| Queue Length 95th (ft) | 280 | 40 | 2 | 6 |
| Control Delay (s) | 308.2 | 30.6 | 0.8 | 1.7 |
| Lane LOS | F | D | A | A |
| Approach Delay (s) | 308.2 | 30.6 | 0.8 | 1.7 |
| Approach LOS | F | D | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | | 35.0 | |
| Intersection Capacity Utilization | | 80.5% | ICU Level of Service D |
| Analysis Period (min) | | 15 | |

## HCM Unsignalized Intersection Capacity Analysis
## 4: Route C & Center Street

PM Peak Hour
Future Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 2 | 2 | 75 | 4 | 0 | 6 | 131 | 464 | 2 | 2 | 561 | 4 |
| Future Volume (Veh/h) | 2 | 2 | 75 | 4 | 0 | 6 | 131 | 464 | 2 | 2 | 561 | 4 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 2 | 2 | 83 | 4 | 0 | 7 | 146 | 516 | 2 | 2 | 623 | 4 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1445 | 1439 | 625 | 1522 | 1440 | 517 | 627 | | | 518 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1445 | 1439 | 625 | 1522 | 1440 | 517 | 627 | | | 518 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 98 | 98 | 83 | 94 | 100 | 99 | 85 | | | 100 | | |
| cM capacity (veh/h) | 95 | 112 | 485 | 70 | 112 | 558 | 955 | | | 1048 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 87 | 11 | 664 | 629 |
| Volume Left | 2 | 4 | 146 | 2 |
| Volume Right | 83 | 7 | 2 | 4 |
| cSH | 414 | 158 | 955 | 1048 |
| Volume to Capacity | 0.21 | 0.07 | 0.15 | 0.00 |
| Queue Length 95th (ft) | 20 | 6 | 13 | 0 |
| Control Delay (s) | 16.0 | 29.6 | 3.7 | 0.1 |
| Lane LOS | C | D | A | A |
| Approach Delay (s) | 16.0 | 29.6 | 3.7 | 0.1 |
| Approach LOS | C | D | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | | 3.0 | |
| Intersection Capacity Utilization | | 76.5% | ICU Level of Service D |
| Analysis Period (min) | | 15 | |



## HCM Unsignalized Intersection Capacity Analysis
## 5: Route C & South Street

PM Peak Hour
Future Conditions

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 0 | 1 | 5 | 0 | 131 | 4 | 333 | 0 | 129 | 525 | 0 |
| Future Volume (Veh/h) | 1 | 0 | 1 | 5 | 0 | 131 | 4 | 333 | 0 | 129 | 525 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 1 | 0 | 1 | 6 | 0 | 146 | 4 | 370 | 0 | 143 | 583 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1393 | 1247 | 583 | 1248 | 1247 | 370 | 583 | | | 370 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1393 | 1247 | 583 | 1248 | 1247 | 370 | 583 | | | 370 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 99 | 100 | 100 | 96 | 100 | 78 | 100 | | | 88 | | |
| cM capacity (veh/h) | 85 | 152 | 512 | 136 | 152 | 676 | 991 | | | 1189 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 2 | 152 | 374 | 726 |
| Volume Left | 1 | 6 | 4 | 143 |
| Volume Right | 1 | 146 | 0 | 0 |
| cSH | 145 | 584 | 991 | 1189 |
| Volume to Capacity | 0.01 | 0.26 | 0.00 | 0.12 |
| Queue Length 95th (ft) | 1 | 26 | 0 | 10 |
| Control Delay (s) | 30.2 | 13.3 | 0.1 | 2.9 |
| Lane LOS | D | B | A | A |
| Approach Delay (s) | 30.2 | 13.3 | 0.1 | 2.9 |
| Approach LOS | D | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | | 3.4 | |
| Intersection Capacity Utilization | | 70.9% | ICU Level of Service C |
| Analysis Period (min) | | 15 | |

## HCM Unsignalized Intersection Capacity Analysis
## 1: Schug Avenue & Route C

AM Peak Hour
Existing Conditions Short-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 12 | 545 | 8 | 5 | 212 | 36 | 6 | 0 | 7 | 7 | 0 | 32 |
| Future Volume (Veh/h) | 12 | 545 | 8 | 5 | 212 | 36 | 6 | 0 | 7 | 7 | 0 | 32 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 13 | 606 | 9 | 6 | 236 | 40 | 7 | 0 | 8 | 8 | 0 | 36 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 276 | | | 615 | | | 920 | 924 | 610 | 908 | 909 | 256 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 276 | | | 615 | | | 920 | 924 | 610 | 908 | 909 | 256 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 99 | | | 97 | 100 | 98 | 97 | 100 | 95 |
| cM capacity (veh/h) | 1287 | | | 965 | | | 237 | 265 | 494 | 249 | 270 | 783 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 13 | 615 | 6 | 276 | 15 | 44 |
| Volume Left | 13 | 0 | 6 | 0 | 7 | 8 |
| Volume Right | 0 | 9 | 0 | 40 | 8 | 36 |
| cSH | 1287 | 1700 | 965 | 1700 | 328 | 563 |
| Volume to Capacity | 0.01 | 0.36 | 0.01 | 0.16 | 0.05 | 0.08 |
| Queue Length 95th (ft) | 1 | 0 | 0 | 0 | 4 | 6 |
| Control Delay (s) | 7.8 | 0.0 | 8.8 | 0.0 | 16.5 | 11.9 |
| Lane LOS | A | | A | | C | B |
| Approach Delay (s) | 0.2 | | 0.2 | | 16.5 | 11.9 |
| Approach LOS | | | | | C | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 1.0 | | |
| Intersection Capacity Utilization | | 39.2% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |



## HCM Unsignalized Intersection Capacity Analysis
## 2: Route C & Main Street

AM Peak Hour
Existing Conditions Short-Term

| Movement | EBL2 | EBL | SBL | SBR | SWR | SWR2 |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 6 | 528 | 41 | 9 | 214 | 11 |
| Future Volume (Veh/h) | 6 | 528 | 41 | 9 | 214 | 11 |
| Sign Control | | Free | Stop | | Free | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 7 | 587 | 46 | 10 | 238 | 12 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 250 | | 845 | 244 | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 250 | | 845 | 244 | | |
| tC, single (s) | 4.1 | | 6.4 | 6.2 | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | 3.5 | 3.3 | | |
| p0 queue free % | 99 | | 86 | 99 | | |
| cM capacity (veh/h) | 1316 | | 331 | 795 | | |

| Direction, Lane # | EB 1 | SB 1 | SB 2 | SW 1 |
|---|---|---|---|---|
| Volume Total | 594 | 46 | 10 | 250 |
| Volume Left | 7 | 46 | 0 | 0 |
| Volume Right | 0 | 0 | 10 | 12 |
| cSH | 1316 | 331 | 795 | 1700 |
| Volume to Capacity | 0.01 | 0.14 | 0.01 | 0.15 |
| Queue Length 95th (ft) | 0 | 12 | 1 | 0 |
| Control Delay (s) | 0.2 | 17.6 | 9.6 | 0.0 |
| Lane LOS | A | C | A | |
| Approach Delay (s) | 0.2 | 16.2 | | 0.0 |
| Approach LOS | | C | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 1.1 | | |
| Intersection Capacity Utilization | | 39.6% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

## HCM Unsignalized Intersection Capacity Analysis
## 3: Route C & North Street

AM Peak Hour
Existing Conditions Short-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 45 | 29 | 86 | 2 | 13 | 63 | 67 | 394 | 4 | 31 | 152 | 42 |
| Future Volume (Veh/h) | 45 | 29 | 86 | 2 | 13 | 63 | 67 | 394 | 4 | 31 | 152 | 42 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 50 | 32 | 96 | 2 | 14 | 70 | 74 | 438 | 4 | 34 | 169 | 47 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 926 | 850 | 192 | 960 | 872 | 440 | 216 | | | 442 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 926 | 850 | 192 | 960 | 872 | 440 | 216 | | | 442 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 75 | 88 | 89 | 99 | 95 | 89 | 95 | | | 97 | | |
| cM capacity (veh/h) | 199 | 273 | 849 | 179 | 265 | 617 | 1354 | | | 1118 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 50 | 128 | 2 | 84 | 516 | 250 |
| Volume Left | 50 | 0 | 2 | 0 | 74 | 34 |
| Volume Right | 0 | 96 | 0 | 70 | 4 | 47 |
| cSH | 199 | 555 | 179 | 505 | 1354 | 1118 |
| Volume to Capacity | 0.25 | 0.23 | 0.01 | 0.17 | 0.05 | 0.03 |
| Queue Length 95th (ft) | 24 | 22 | 1 | 15 | 4 | 2 |
| Control Delay (s) | 29.1 | 13.4 | 25.4 | 13.5 | 1.6 | 1.4 |
| Lane LOS | D | B | D | B | A | A |
| Approach Delay (s) | 17.8 | | 13.8 | | 1.6 | 1.4 |
| Approach LOS | C | | B | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 5.4 | | |
| Intersection Capacity Utilization | 49.3% | | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |



## HCM Unsignalized Intersection Capacity Analysis
## 4: Route C & Center Street

AM Peak Hour
Existing Conditions Short-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 8 | 0 | 1 | 0 | 0 | 8 | 0 | 465 | 3 | 6 | 235 | 0 |
| Future Volume (Veh/h) | 8 | 0 | 1 | 0 | 0 | 8 | 0 | 465 | 3 | 6 | 235 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 9 | 0 | 1 | 0 | 0 | 9 | 0 | 517 | 3 | 7 | 261 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 802 | 795 | 261 | 794 | 794 | 518 | 261 | | | 520 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 802 | 795 | 261 | 794 | 794 | 518 | 261 | | | 520 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 97 | 100 | 100 | 100 | 100 | 98 | 100 | | | 99 | | |
| cM capacity (veh/h) | 296 | 318 | 778 | 304 | 319 | 557 | 1303 | | | 1046 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 10 | 9 | 520 | 268 |
| Volume Left | 9 | 0 | 0 | 7 |
| Volume Right | 1 | 9 | 3 | 0 |
| cSH | 315 | 557 | 1303 | 1046 |
| Volume to Capacity | 0.03 | 0.02 | 0.00 | 0.01 |
| Queue Length 95th (ft) | 2 | 1 | 0 | 1 |
| Control Delay (s) | 16.8 | 11.6 | 0.0 | 0.3 |
| Lane LOS | C | B | | A |
| Approach Delay (s) | 16.8 | 11.6 | 0.0 | 0.3 |
| Approach LOS | C | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 0.4 | | |
| Intersection Capacity Utilization | 38.3% | | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

## HCM Unsignalized Intersection Capacity Analysis
## 5: Route C & South Street

AM Peak Hour
Existing Conditions Short-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 1 | 1 | 2 | 1 | 24 | 3 | 401 | 0 | 2 | 137 | 1 |
| Future Volume (Veh/h) | 1 | 1 | 1 | 2 | 1 | 24 | 3 | 401 | 0 | 2 | 137 | 1 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 1 | 1 | 1 | 2 | 1 | 27 | 3 | 446 | 0 | 2 | 152 | 1 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 636 | 608 | 152 | 610 | 609 | 446 | 153 | | | 446 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 636 | 608 | 152 | 610 | 609 | 446 | 153 | | | 446 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 100 | 100 | 96 | 100 | | | 100 | | |
| cM capacity (veh/h) | 372 | 408 | 894 | 404 | 408 | 612 | 1428 | | | 1114 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 3 | 30 | 449 | 155 |
| Volume Left | 1 | 2 | 3 | 2 |
| Volume Right | 1 | 27 | 0 | 1 |
| cSH | 479 | 583 | 1428 | 1114 |
| Volume to Capacity | 0.01 | 0.05 | 0.00 | 0.00 |
| Queue Length 95th (ft) | 0 | 4 | 0 | 0 |
| Control Delay (s) | 12.6 | 11.5 | 0.1 | 0.1 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 12.6 | 11.5 | 0.1 | 0.1 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 0.7 | | |
| Intersection Capacity Utilization | 32.8% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



## HCM Unsignalized Intersection Capacity Analysis
## 6: Route C & Peculiar Dr

AM Peak Hour
Existing Conditions Short-Term

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1 | 30 | 374 | 1 | 40 | 100 |
| Future Volume (Veh/h) | 1 | 30 | 374 | 1 | 40 | 100 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 1 | 33 | 416 | 1 | 44 | 111 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 616 | 416 | | | 417 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 616 | 416 | | | 417 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 95 | | | 96 | |
| cM capacity (veh/h) | 437 | 636 | | | 1142 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 34 | 417 | 155 |
| Volume Left | 1 | 0 | 44 |
| Volume Right | 33 | 1 | 0 |
| cSH | 628 | 1700 | 1142 |
| Volume to Capacity | 0.05 | 0.25 | 0.04 |
| Queue Length 95th (ft) | 4 | 0 | 3 |
| Control Delay (s) | 11.1 | 0.0 | 2.6 |
| Lane LOS | B | | A |
| Approach Delay (s) | 11.1 | 0.0 | 2.6 |
| Approach LOS | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 1.3 | | |
| Intersection Capacity Utilization | 40.6% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

## HCM Unsignalized Intersection Capacity Analysis
## 1: Schug Avenue & Route C

PM Peak Hour
Existing Conditions Short-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 26 | 268 | 13 | 33 | 475 | 108 | 15 | 4 | 29 | 65 | 3 | 27 |
| Future Volume (Veh/h) | 26 | 268 | 13 | 33 | 475 | 108 | 15 | 4 | 29 | 65 | 3 | 27 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 29 | 298 | 14 | 37 | 528 | 120 | 17 | 4 | 32 | 72 | 3 | 30 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 648 | | | 312 | | | 996 | 1085 | 305 | 1052 | 1032 | 588 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 648 | | | 312 | | | 996 | 1085 | 305 | 1052 | 1032 | 588 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 97 | | | 97 | | | 91 | 98 | 96 | 61 | 99 | 94 |
| cM capacity (veh/h) | 938 | | | 1248 | | | 198 | 204 | 735 | 184 | 219 | 509 |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 29 | 312 | 37 | 648 | 53 | 105 |
| Volume Left | 29 | 0 | 37 | 0 | 17 | 72 |
| Volume Right | 0 | 14 | 0 | 120 | 32 | 30 |
| cSH | 938 | 1700 | 1248 | 1700 | 356 | 226 |
| Volume to Capacity | 0.03 | 0.18 | 0.03 | 0.38 | 0.15 | 0.46 |
| Queue Length 95th (ft) | 2 | 0 | 2 | 0 | 13 | 57 |
| Control Delay (s) | 9.0 | 0.0 | 8.0 | 0.0 | 16.9 | 34.0 |
| Lane LOS | A | | A | | C | D |
| Approach Delay (s) | 0.8 | | 0.4 | | 16.9 | 34.0 |
| Approach LOS | | | | | C | D |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 4.2 | | |
| Intersection Capacity Utilization | 49.0% | ICU Level of Service | A | |
| Analysis Period (min) | | 15 | | |



## HCM Unsignalized Intersection Capacity Analysis
## 2: Route C & Main Street

PM Peak Hour
Existing Conditions Short-Term

| Movement | EBL2 | EBL | SBL | SBR | SWR | SWR2 |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 20 | 343 | 44 | 45 | 430 | 21 |
| Future Volume (Veh/h) | 20 | 343 | 44 | 45 | 430 | 21 |
| Sign Control | | Free | Stop | | Free | |
| Grade | | 0% | 0% | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 22 | 381 | 49 | 50 | 478 | 23 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | None | | | None | |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 501 | | 914 | 490 | | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 501 | | 914 | 490 | | |
| tC, single (s) | 4.1 | | 6.4 | 6.2 | | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 2.2 | | 3.5 | 3.3 | | |
| p0 queue free % | 98 | | 83 | 91 | | |
| cM capacity (veh/h) | 1063 | | 297 | 579 | | |

| Direction, Lane # | EB 1 | SB 1 | SB 2 | SW 1 |
|---|---|---|---|---|
| Volume Total | 403 | 49 | 50 | 501 |
| Volume Left | 22 | 49 | 0 | 0 |
| Volume Right | 0 | 0 | 50 | 23 |
| cSH | 1063 | 297 | 579 | 1700 |
| Volume to Capacity | 0.02 | 0.17 | 0.09 | 0.29 |
| Queue Length 95th (ft) | 2 | 15 | 7 | 0 |
| Control Delay (s) | 0.7 | 19.5 | 11.8 | 0.0 |
| Lane LOS | A | C | B | |
| Approach Delay (s) | 0.7 | 15.6 | | 0.0 |
| Approach LOS | | C | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 1.8 | | |
| Intersection Capacity Utilization | 37.9% | ICU Level of Service | A | |
| Analysis Period (min) | | 15 | | |

## HCM Unsignalized Intersection Capacity Analysis
## 3: Route C & North Street

PM Peak Hour
Existing Conditions Short-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 45 | 26 | 64 | 13 | 11 | 36 | 125 | 252 | 3 | 56 | 318 | 59 |
| Future Volume (Veh/h) | 45 | 26 | 64 | 13 | 11 | 36 | 125 | 252 | 3 | 56 | 318 | 59 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 50 | 29 | 71 | 14 | 12 | 40 | 139 | 280 | 3 | 62 | 353 | 66 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1116 | 1071 | 386 | 1155 | 1102 | 282 | 419 | | | 283 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1116 | 1071 | 386 | 1155 | 1102 | 282 | 419 | | | 283 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 66 | 84 | 89 | 88 | 93 | 95 | 88 | | | 95 | | |
| cM capacity (veh/h) | 145 | 184 | 662 | 120 | 177 | 757 | 1140 | | | 1279 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 |
|---|---|---|---|---|---|---|
| Volume Total | 50 | 100 | 14 | 52 | 422 | 481 |
| Volume Left | 50 | 0 | 14 | 0 | 139 | 62 |
| Volume Right | 0 | 71 | 0 | 40 | 3 | 66 |
| cSH | 145 | 378 | 120 | 431 | 1140 | 1279 |
| Volume to Capacity | 0.34 | 0.26 | 0.12 | 0.12 | 0.12 | 0.05 |
| Queue Length 95th (ft) | 35 | 26 | 10 | 10 | 10 | 4 |
| Control Delay (s) | 42.2 | 17.9 | 39.0 | 14.5 | 3.7 | 1.5 |
| Lane LOS | E | C | E | B | A | A |
| Approach Delay (s) | 26.0 | | 19.7 | | 3.7 | 1.5 |
| Approach LOS | D | | C | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | | 6.7 | |
| Intersection Capacity Utilization | | | 57.7% | ICU Level of Service |
| Analysis Period (min) | | | 15 | |



## HCM Unsignalized Intersection Capacity Analysis
## 4: Route C & Center Street

PM Peak Hour
Existing Conditions Short-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 2 | 1 | 2 | 3 | 0 | 5 | 0 | 365 | 2 | 2 | 415 | 0 |
| Future Volume (Veh/h) | 2 | 1 | 2 | 3 | 0 | 5 | 0 | 365 | 2 | 2 | 415 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 2 | 1 | 2 | 3 | 0 | 6 | 0 | 406 | 2 | 2 | 461 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 878 | 873 | 461 | 874 | 872 | 407 | 461 | | | 408 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 878 | 873 | 461 | 874 | 872 | 407 | 461 | | | 408 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 99 | 100 | 100 | 99 | 100 | 99 | 100 | | | 100 | | |
| cM capacity (veh/h) | 266 | 288 | 600 | 268 | 288 | 644 | 1100 | | | 1151 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 5 | 9 | 408 | 463 |
| Volume Left | 2 | 3 | 0 | 2 |
| Volume Right | 2 | 6 | 2 | 0 |
| cSH | 349 | 439 | 1100 | 1151 |
| Volume to Capacity | 0.01 | 0.02 | 0.00 | 0.00 |
| Queue Length 95th (ft) | 1 | 2 | 0 | 0 |
| Control Delay (s) | 15.5 | 13.4 | 0.0 | 0.1 |
| Lane LOS | C | B | | A |
| Approach Delay (s) | 15.5 | 13.4 | 0.0 | 0.1 |
| Approach LOS | C | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | | 0.3 | |
| Intersection Capacity Utilization | | | 33.4% | ICU Level of Service |
| Analysis Period (min) | | | 15 | |

## HCM Unsignalized Intersection Capacity Analysis
## 5: Route C & South Street

PM Peak Hour
Existing Conditions Short-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 0 | 1 | 4 | 0 | 15 | 3 | 277 | 0 | 14 | 411 | 0 |
| Future Volume (Veh/h) | 1 | 0 | 1 | 4 | 0 | 15 | 3 | 277 | 0 | 14 | 411 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 1 | 0 | 1 | 4 | 0 | 17 | 3 | 308 | 0 | 16 | 457 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 820 | 803 | 457 | 804 | 803 | 308 | 457 | | | 308 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 820 | 803 | 457 | 804 | 803 | 308 | 457 | | | 308 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 99 | 100 | 98 | 100 | | | 99 | | |
| cM capacity (veh/h) | 284 | 312 | 604 | 297 | 312 | 732 | 1104 | | | 1253 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 2 | 21 | 311 | 473 |
| Volume Left | 1 | 4 | 3 | 16 |
| Volume Right | 1 | 17 | 0 | 0 |
| cSH | 386 | 572 | 1104 | 1253 |
| Volume to Capacity | 0.01 | 0.04 | 0.00 | 0.01 |
| Queue Length 95th (ft) | 0 | 3 | 0 | 1 |
| Control Delay (s) | 14.4 | 11.5 | 0.1 | 0.4 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 14.4 | 11.5 | 0.1 | 0.4 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 0.6 | | |
| Intersection Capacity Utilization | | 40.3% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |



## HCM Unsignalized Intersection Capacity Analysis
## 6: Route C & Peculiar Dr

PM Peak Hour
Existing Conditions Short-Term

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1 | 93 | 187 | 0 | 92 | 324 |
| Future Volume (Veh/h) | 1 | 93 | 187 | 0 | 92 | 324 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 1 | 103 | 208 | 0 | 102 | 360 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 772 | 208 | | | 208 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 772 | 208 | | | 208 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 88 | | | 93 | |
| cM capacity (veh/h) | 340 | 832 | | | 1363 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 104 | 208 | 462 |
| Volume Left | 1 | 0 | 102 |
| Volume Right | 103 | 0 | 0 |
| cSH | 821 | 1700 | 1363 |
| Volume to Capacity | 0.13 | 0.12 | 0.07 |
| Queue Length 95th (ft) | 11 | 0 | 6 |
| Control Delay (s) | 10.0 | 0.0 | 2.3 |
| Lane LOS | B | | A |
| Approach Delay (s) | 10.0 | 0.0 | 2.3 |
| Approach LOS | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 2.7 | | |
| Intersection Capacity Utilization | | 47.8% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |

## HCM Unsignalized Intersection Capacity Analysis
## 1: Schug Avenue & Route C

AM Peak Hour
FutureConditions Long-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 12 | 687 | 10 | 6 | 296 | 41 | 7 | 0 | 9 | 10 | 0 | 32 |
| Future Volume (Veh/h) | 12 | 687 | 10 | 6 | 296 | 41 | 7 | 0 | 9 | 10 | 0 | 32 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 13 | 763 | 11 | 7 | 329 | 46 | 8 | 0 | 10 | 11 | 0 | 36 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 375 | | | 774 | | | 1009 | 1184 | 387 | 784 | 1166 | 188 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 375 | | | 774 | | | 1009 | 1184 | 387 | 784 | 1166 | 188 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 99 | | | 99 | | | 96 | 100 | 98 | 96 | 100 | 96 |
| cM capacity (veh/h) | 1180 | | | 837 | | | 183 | 184 | 611 | 275 | 189 | 823 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | NB 1 | SB 1 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 13 | 509 | 265 | 7 | 219 | 156 | 18 | 47 |
| Volume Left | 13 | 0 | 0 | 7 | 0 | 0 | 8 | 11 |
| Volume Right | 0 | 0 | 11 | 0 | 0 | 46 | 10 | 36 |
| cSH | 1180 | 1700 | 1700 | 837 | 1700 | 1700 | 300 | 561 |
| Volume to Capacity | 0.01 | 0.30 | 0.16 | 0.01 | 0.13 | 0.09 | 0.06 | 0.08 |
| Queue Length 95th (ft) | 1 | 0 | 0 | 1 | 0 | 0 | 5 | 7 |
| Control Delay (s) | 8.1 | 0.0 | 0.0 | 9.3 | 0.0 | 0.0 | 17.8 | 12.0 |
| Lane LOS | A | | | A | | | C | B |
| Approach Delay (s) | 0.1 | | | 0.2 | | | 17.8 | 12.0 |
| Approach LOS | | | | | | | C | B |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 0.9 | | |
| Intersection Capacity Utilization | | 29.3% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |



## HCM Unsignalized Intersection Capacity Analysis
## 2: Route C & Main Street

AM Peak Hour
FutureConditions Long-Term

| Movement | NBT | NBR | SBL | SBT | SWL | SWR |
|---|---|---|---|---|---|---|
| Right Turn Channelized | | | | | | |
| Traffic Volume (veh/h) | 42 | 642 | 69 | 31 | 252 | 57 |
| Future Volume (veh/h) | 42 | 642 | 69 | 31 | 252 | 57 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 47 | 713 | 77 | 34 | 280 | 63 |
| Approach Volume (veh/h) | 760 | | | 111 | 343 | |
| Crossing Volume (veh/h) | 77 | | | 280 | 47 | |
| High Capacity (veh/h) | 1304 | | | 1112 | 1335 | |
| High v/c (veh/h) | 0.58 | | | 0.10 | 0.26 | |
| Low Capacity (veh/h) | 1088 | | | 914 | 1116 | |
| Low v/c (veh/h) | 0.70 | | | 0.12 | 0.31 | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Maximum v/c High | | 0.58 | | |
| Maximum v/c Low | | 0.70 | | |
| Intersection Capacity Utilization | | 38.2% | ICU Level of Service | A |

## HCM Unsignalized Intersection Capacity Analysis
## 3: Route C & North Street

AM Peak Hour
FutureConditions Long-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 83 | 35 | 105 | 2 | 16 | 77 | 81 | 533 | 5 | 38 | 206 | 65 |
| Future Volume (Veh/h) | 83 | 35 | 105 | 2 | 16 | 77 | 81 | 533 | 5 | 38 | 206 | 65 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 92 | 39 | 117 | 2 | 18 | 86 | 90 | 592 | 6 | 42 | 229 | 72 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1183 | 1091 | 229 | 1224 | 1160 | 595 | 301 | | | 598 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1183 | 1091 | 229 | 1224 | 1160 | 595 | 301 | | | 598 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 21 | 80 | 86 | 98 | 90 | 83 | 93 | | | 96 | | |
| cM capacity (veh/h) | 116 | 191 | 810 | 103 | 174 | 504 | 1260 | | | 979 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 92 | 156 | 2 | 104 | 688 | 271 | 72 |
| Volume Left | 92 | 0 | 2 | 0 | 90 | 42 | 0 |
| Volume Right | 0 | 117 | 0 | 86 | 6 | 0 | 72 |
| cSH | 116 | 447 | 103 | 379 | 1260 | 979 | 1700 |
| Volume to Capacity | 0.79 | 0.35 | 0.02 | 0.27 | 0.07 | 0.04 | 0.04 |
| Queue Length 95th (ft) | 114 | 39 | 1 | 27 | 6 | 3 | 0 |
| Control Delay (s) | 103.8 | 17.3 | 40.6 | 18.0 | 1.8 | 1.7 | 0.0 |
| Lane LOS | F | C | E | C | A | A | |
| Approach Delay (s) | 49.4 | | 18.5 | | 1.8 | 1.4 | |
| Approach LOS | E | | C | | | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | | 11.5 | |
| Intersection Capacity Utilization | | 67.0% | ICU Level of Service C |
| Analysis Period (min) | | 15 | |



## HCM Unsignalized Intersection Capacity Analysis
## 4: Route C & Center Street

AM Peak Hour
FutureConditions Long-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 10 | 1 | 2 | 1 | 0 | 10 | 0 | 616 | 4 | 7 | 307 | 0 |
| Future Volume (Veh/h) | 10 | 1 | 2 | 1 | 0 | 10 | 0 | 616 | 4 | 7 | 307 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 11 | 1 | 2 | 1 | 0 | 11 | 0 | 684 | 4 | 8 | 341 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1054 | 1045 | 341 | 1046 | 1043 | 686 | 341 | | | 688 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1054 | 1045 | 341 | 1046 | 1043 | 686 | 341 | | | 688 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 94 | 100 | 100 | 100 | 100 | 98 | 100 | | | 99 | | |
| cM capacity (veh/h) | 198 | 227 | 701 | 204 | 227 | 447 | 1218 | | | 906 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 14 | 12 | 688 | 349 |
| Volume Left | 11 | 1 | 0 | 8 |
| Volume Right | 2 | 11 | 4 | 0 |
| cSH | 222 | 407 | 1218 | 906 |
| Volume to Capacity | 0.06 | 0.03 | 0.00 | 0.01 |
| Queue Length 95th (ft) | 5 | 2 | 0 | 1 |
| Control Delay (s) | 22.3 | 14.1 | 0.0 | 0.3 |
| Lane LOS | C | B | | A |
| Approach Delay (s) | 22.3 | 14.1 | 0.0 | 0.3 |
| Approach LOS | C | B | | |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | | 0.6 | |
| Intersection Capacity Utilization | | 43.0% | ICU Level of Service A |
| Analysis Period (min) | | 15 | |

## HCM Unsignalized Intersection Capacity Analysis
## 5: Route C & South Street

AM Peak Hour
FutureConditions Long-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 0 | 1 | 2 | 1 | 29 | 4 | 544 | 0 | 2 | 200 | 1 |
| Future Volume (Veh/h) | 1 | 0 | 1 | 2 | 1 | 29 | 4 | 544 | 0 | 2 | 200 | 1 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 1 | 0 | 1 | 2 | 1 | 32 | 4 | 604 | 0 | 2 | 222 | 1 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 871 | 838 | 222 | 840 | 839 | 604 | 223 | | | 604 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 871 | 838 | 222 | 840 | 839 | 604 | 223 | | | 604 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 100 | 100 | 100 | 99 | 100 | 94 | 100 | | | 100 | | |
| cM capacity (veh/h) | 252 | 301 | 817 | 284 | 300 | 498 | 1346 | | | 974 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 2 | 35 | 608 | 225 |
| Volume Left | 1 | 2 | 4 | 2 |
| Volume Right | 1 | 32 | 0 | 1 |
| cSH | 386 | 469 | 1346 | 974 |
| Volume to Capacity | 0.01 | 0.07 | 0.00 | 0.00 |
| Queue Length 95th (ft) | 0 | 6 | 0 | 0 |
| Control Delay (s) | 14.4 | 13.3 | 0.1 | 0.1 |
| Lane LOS | B | B | A | A |
| Approach Delay (s) | 14.4 | 13.3 | 0.1 | 0.1 |
| Approach LOS | B | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 0.7 | | |
| Intersection Capacity Utilization | 41.1% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |



## HCM Unsignalized Intersection Capacity Analysis
## 6: Route C & Peculiar Dr

AM Peak Hour
FutureConditions Long-Term

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1 | 37 | 513 | 0 | 49 | 154 |
| Future Volume (Veh/h) | 1 | 37 | 513 | 0 | 49 | 154 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 1 | 41 | 570 | 0 | 54 | 171 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 849 | 570 | | | 570 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 849 | 570 | | | 570 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 100 | 92 | | | 95 | |
| cM capacity (veh/h) | 313 | 521 | | | 1002 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 42 | 570 | 225 |
| Volume Left | 1 | 0 | 54 |
| Volume Right | 41 | 0 | 0 |
| cSH | 513 | 1700 | 1002 |
| Volume to Capacity | 0.08 | 0.34 | 0.05 |
| Queue Length 95th (ft) | 7 | 0 | 4 |
| Control Delay (s) | 12.6 | 0.0 | 2.5 |
| Lane LOS | B | | A |
| Approach Delay (s) | 12.6 | 0.0 | 2.5 |
| Approach LOS | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 1.3 | | |
| Intersection Capacity Utilization | 51.1% | ICU Level of Service | A | |
| Analysis Period (min) | 15 | | | |

## HCM Unsignalized Intersection Capacity Analysis
## 1: Schug Avenue & Route C

PM Peak Hour
FutureConditions Long-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 26 | 490 | 16 | 40 | 737 | 123 | 18 | 5 | 35 | 82 | 3 | 27 |
| Future Volume (Veh/h) | 26 | 490 | 16 | 40 | 737 | 123 | 18 | 5 | 35 | 82 | 3 | 27 |
| Sign Control | | Free | | | Free | | | Stop | | | Stop | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 29 | 544 | 18 | 44 | 819 | 137 | 20 | 6 | 39 | 91 | 3 | 30 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | None | | | None | | | | | | | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 956 | | | 562 | | | 1140 | 1655 | 281 | 1348 | 1596 | 478 |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 956 | | | 562 | | | 1140 | 1655 | 281 | 1348 | 1596 | 478 |
| tC, single (s) | 4.1 | | | 4.1 | | | 7.5 | 6.5 | 6.9 | 7.5 | 6.5 | 6.9 |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 2.2 | | | 2.2 | | | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 |
| p0 queue free % | 96 | | | 96 | | | 85 | 93 | 95 | 1 | 97 | 94 |
| cM capacity (veh/h) | 715 | | | 1005 | | | 135 | 89 | 716 | 92 | 97 | 534 |

| Direction, Lane # | EB 1 | EB 2 | EB 3 | WB 1 | WB 2 | WB 3 | NB 1 | SB 1 |
|---|---|---|---|---|---|---|---|---|
| Volume Total | 29 | 363 | 199 | 44 | 546 | 410 | 65 | 124 |
| Volume Left | 29 | 0 | 0 | 44 | 0 | 0 | 20 | 91 |
| Volume Right | 0 | 0 | 18 | 0 | 0 | 137 | 39 | 30 |
| cSH | 715 | 1700 | 1700 | 1005 | 1700 | 1700 | 240 | 115 |
| Volume to Capacity | 0.04 | 0.21 | 0.12 | 0.04 | 0.32 | 0.24 | 0.27 | 1.08 |
| Queue Length 95th (ft) | 3 | 0 | 0 | 3 | 0 | 0 | 27 | 185 |
| Control Delay (s) | 10.2 | 0.0 | 0.0 | 8.7 | 0.0 | 0.0 | 25.4 | 177.5 |
| Lane LOS | B | | | A | | | D | F |
| Approach Delay (s) | 0.5 | | | 0.4 | | | 25.4 | 177.5 |
| Approach LOS | | | | | | | D | F |

| Intersection Summary | | | |
|---|---|---|---|
| Average Delay | | 13.7 | |
| Intersection Capacity Utilization | | 50.6% | ICU Level of Service A |
| Analysis Period (min) | | 15 | |



## HCM Unsignalized Intersection Capacity Analysis
## 2: Route C & Main Street

PM Peak Hour
FutureConditions Long-Term

| Movement | NBT | NBR | SBL | SBT | SWL | SWR |
|---|---|---|---|---|---|---|
| Right Turn Channelized | | | | | | |
| Traffic Volume (veh/h) | 127 | 416 | 193 | 161 | 553 | 159 |
| Future Volume (veh/h) | 127 | 416 | 193 | 161 | 553 | 159 |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 141 | 462 | 214 | 179 | 614 | 177 |
| Approach Volume (veh/h) | 603 | | | 393 | 791 | |
| Crossing Volume (veh/h) | 214 | | | 614 | 141 | |
| High Capacity (veh/h) | 1171 | | | 852 | 1240 | |
| High v/c (veh/h) | 0.51 | | | 0.46 | 0.64 | |
| Low Capacity (veh/h) | 967 | | | 682 | 1030 | |
| Low v/c (veh/h) | 0.62 | | | 0.58 | 0.77 | |

| Intersection Summary | | | |
|---|---|---|---|
| Maximum v/c High | | 0.64 | |
| Maximum v/c Low | | 0.77 | |
| Intersection Capacity Utilization | | 56.6% | ICU Level of Service B |

## HCM Unsignalized Intersection Capacity Analysis
## 3: Route C & North Street

PM Peak Hour
FutureConditions Long-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 104 | 32 | 78 | 16 | 13 | 44 | 153 | 401 | 4 | 68 | 524 | 127 |
| Future Volume (Veh/h) | 104 | 32 | 78 | 16 | 13 | 44 | 153 | 401 | 4 | 68 | 524 | 127 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 116 | 36 | 87 | 18 | 14 | 49 | 170 | 446 | 4 | 76 | 582 | 141 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1578 | 1524 | 582 | 1627 | 1663 | 448 | 723 | | | 450 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1578 | 1524 | 582 | 1627 | 1663 | 448 | 723 | | | 450 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 0 | 59 | 83 | 53 | 81 | 92 | 81 | | | 93 | | |
| cM capacity (veh/h) | 57 | 89 | 513 | 38 | 73 | 611 | 879 | | | 1110 | | |

| Direction, Lane # | EB 1 | EB 2 | WB 1 | WB 2 | NB 1 | SB 1 | SB 2 |
|---|---|---|---|---|---|---|---|
| Volume Total | 116 | 123 | 18 | 63 | 620 | 658 | 141 |
| Volume Left | 116 | 0 | 18 | 0 | 170 | 76 | 0 |
| Volume Right | 0 | 87 | 0 | 49 | 4 | 0 | 141 |
| cSH | 57 | 214 | 38 | 231 | 879 | 1110 | 1700 |
| Volume to Capacity | 2.05 | 0.58 | 0.47 | 0.27 | 0.19 | 0.07 | 0.08 |
| Queue Length 95th (ft) | 282 | 79 | 41 | 27 | 18 | 6 | 0 |
| Control Delay (s) | 644.5 | 42.5 | 165.3 | 26.3 | 4.7 | 1.8 | 0.0 |
| Lane LOS | F | E | F | D | A | A | |
| Approach Delay (s) | 334.7 | | 57.2 | | 4.7 | 1.4 | |
| Approach LOS | F | | F | | | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 51.0 | | |
| Intersection Capacity Utilization | 83.6% | ICU Level of Service | E | |
| Analysis Period (min) | | 15 | | |



## HCM Unsignalized Intersection Capacity Analysis
## 4: Route C & Center Street

PM Peak Hour
FutureConditions Long-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 2 | 1 | 2 | 4 | 0 | 6 | 0 | 595 | 2 | 2 | 634 | 0 |
| Future Volume (Veh/h) | 2 | 1 | 2 | 4 | 0 | 6 | 0 | 595 | 2 | 2 | 634 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 2 | 1 | 2 | 4 | 0 | 7 | 0 | 661 | 2 | 2 | 704 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1377 | 1371 | 704 | 1372 | 1370 | 662 | 704 | | | 663 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1377 | 1371 | 704 | 1372 | 1370 | 662 | 704 | | | 663 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 98 | 99 | 100 | 97 | 100 | 98 | 100 | | | 100 | | |
| cM capacity (veh/h) | 120 | 146 | 437 | 122 | 146 | 462 | 894 | | | 926 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 5 | 11 | 663 | 706 |
| Volume Left | 2 | 4 | 0 | 2 |
| Volume Right | 2 | 7 | 2 | 0 |
| cSH | 178 | 229 | 894 | 926 |
| Volume to Capacity | 0.03 | 0.05 | 0.00 | 0.00 |
| Queue Length 95th (ft) | 2 | 4 | 0 | 0 |
| Control Delay (s) | 25.8 | 21.5 | 0.0 | 0.1 |
| Lane LOS | D | C | | A |
| Approach Delay (s) | 25.8 | 21.5 | 0.0 | 0.1 |
| Approach LOS | D | C | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 0.3 | | |
| Intersection Capacity Utilization | 45.0% | ICU Level of Service | A | |
| Analysis Period (min) | | 15 | | |

## HCM Unsignalized Intersection Capacity Analysis
## 5: Route C & South Street

PM Peak Hour
FutureConditions Long-Term

| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (veh/h) | 1 | 0 | 1 | 5 | 0 | 18 | 4 | 446 | 0 | 17 | 637 | 0 |
| Future Volume (Veh/h) | 1 | 0 | 1 | 5 | 0 | 18 | 4 | 446 | 0 | 17 | 637 | 0 |
| Sign Control | | Stop | | | Stop | | | Free | | | Free | |
| Grade | | 0% | | | 0% | | | 0% | | | 0% | |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 1 | 0 | 1 | 6 | 0 | 20 | 4 | 496 | 0 | 19 | 708 | 0 |
| Pedestrians | | | | | | | | | | | | |
| Lane Width (ft) | | | | | | | | | | | | |
| Walking Speed (ft/s) | | | | | | | | | | | | |
| Percent Blockage | | | | | | | | | | | | |
| Right turn flare (veh) | | | | | | | | | | | | |
| Median type | | | | | | | | None | | | None | |
| Median storage veh) | | | | | | | | | | | | |
| Upstream signal (ft) | | | | | | | | | | | | |
| pX, platoon unblocked | | | | | | | | | | | | |
| vC, conflicting volume | 1270 | 1250 | 708 | 1251 | 1250 | 496 | 708 | | | 496 | | |
| vC1, stage 1 conf vol | | | | | | | | | | | | |
| vC2, stage 2 conf vol | | | | | | | | | | | | |
| vCu, unblocked vol | 1270 | 1250 | 708 | 1251 | 1250 | 496 | 708 | | | 496 | | |
| tC, single (s) | 7.1 | 6.5 | 6.2 | 7.1 | 6.5 | 6.2 | 4.1 | | | 4.1 | | |
| tC, 2 stage (s) | | | | | | | | | | | | |
| tF (s) | 3.5 | 4.0 | 3.3 | 3.5 | 4.0 | 3.3 | 2.2 | | | 2.2 | | |
| p0 queue free % | 99 | 100 | 100 | 96 | 100 | 97 | 100 | | | 98 | | |
| cM capacity (veh/h) | 137 | 169 | 435 | 146 | 169 | 574 | 891 | | | 1068 | | |

| Direction, Lane # | EB 1 | WB 1 | NB 1 | SB 1 |
|---|---|---|---|---|
| Volume Total | 2 | 26 | 500 | 727 |
| Volume Left | 1 | 6 | 4 | 19 |
| Volume Right | 1 | 20 | 0 | 0 |
| cSH | 209 | 343 | 891 | 1068 |
| Volume to Capacity | 0.01 | 0.08 | 0.00 | 0.02 |
| Queue Length 95th (ft) | 1 | 6 | 0 | 1 |
| Control Delay (s) | 22.4 | 16.4 | 0.1 | 0.5 |
| Lane LOS | C | C | A | A |
| Approach Delay (s) | 22.4 | 16.4 | 0.1 | 0.5 |
| Approach LOS | C | C | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 0.7 | | |
| Intersection Capacity Utilization | | 54.4% | ICU Level of Service | A |
| Analysis Period (min) | | 15 | | |



## HCM Unsignalized Intersection Capacity Analysis
## 6: Route C & Peculiar Dr

PM Peak Hour
FutureConditions Long-Term

| Movement | WBL | WBR | NBT | NBR | SBL | SBT |
|---|---|---|---|---|---|---|
| Lane Configurations | | | | | | |
| Traffic Volume (veh/h) | 1 | 113 | 337 | 0 | 112 | 531 |
| Future Volume (Veh/h) | 1 | 113 | 337 | 0 | 112 | 531 |
| Sign Control | Stop | | Free | | | Free |
| Grade | 0% | | 0% | | | 0% |
| Peak Hour Factor | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 | 0.90 |
| Hourly flow rate (vph) | 1 | 126 | 374 | 0 | 124 | 590 |
| Pedestrians | | | | | | |
| Lane Width (ft) | | | | | | |
| Walking Speed (ft/s) | | | | | | |
| Percent Blockage | | | | | | |
| Right turn flare (veh) | | | | | | |
| Median type | | | None | | | None |
| Median storage veh) | | | | | | |
| Upstream signal (ft) | | | | | | |
| pX, platoon unblocked | | | | | | |
| vC, conflicting volume | 1212 | 374 | | | 374 | |
| vC1, stage 1 conf vol | | | | | | |
| vC2, stage 2 conf vol | | | | | | |
| vCu, unblocked vol | 1212 | 374 | | | 374 | |
| tC, single (s) | 6.4 | 6.2 | | | 4.1 | |
| tC, 2 stage (s) | | | | | | |
| tF (s) | 3.5 | 3.3 | | | 2.2 | |
| p0 queue free % | 99 | 81 | | | 90 | |
| cM capacity (veh/h) | 180 | 672 | | | 1184 | |

| Direction, Lane # | WB 1 | NB 1 | SB 1 |
|---|---|---|---|
| Volume Total | 127 | 374 | 714 |
| Volume Left | 1 | 0 | 124 |
| Volume Right | 126 | 0 | 0 |
| cSH | 658 | 1700 | 1184 |
| Volume to Capacity | 0.19 | 0.22 | 0.10 |
| Queue Length 95th (ft) | 18 | 0 | 9 |
| Control Delay (s) | 11.8 | 0.0 | 2.6 |
| Lane LOS | B | | A |
| Approach Delay (s) | 11.8 | 0.0 | 2.6 |
| Approach LOS | B | | |

| Intersection Summary | | | | |
|---|---|---|---|---|
| Average Delay | | 2.7 | | |
| Intersection Capacity Utilization | | 68.9% | ICU Level of Service | C |
| Analysis Period (min) | | 15 | | |

# LANE SUMMARY

## Site: Route C & Main

AM Peak Hour
Roundabout

| Lane Use and Performance | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Demand Flows Total veh/h | HV % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Average Delay sec | Level of Service | 95% Back of Queue Veh | Dist ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
| South: Route C | | | | | | | | | | | | | |
| Lane 1[d] | 46 | 3.0 | 1016 | 0.045 | 100 | 3.9 | LOS A | 5.9 | 149.8 | Full | 1600 | 0.0 | 0.0 |
| Lane 2 | 698 | 3.0 | 1016 | 0.687 | 100 | 14.4 | LOS B | 5.9 | 149.8 | Short | 200 | 0.0 | 0.0 |
| Approach | 743 | 3.0 | | 0.687 | | 13.7 | LOS B | 5.9 | 149.8 | | | | |
| East: Route C | | | | | | | | | | | | | |
| Lane 1 | 168 | 3.0 | 1047 | 0.160 | 100 | 4.9 | LOS A | 0.6 | 15.7 | Full | 1600 | 0.0 | 0.0 |
| Lane 2[d] | 168 | 3.0 | 1047 | 0.160 | 100 | 4.9 | LOS A | 0.6 | 15.7 | Full | 1600 | 0.0 | 0.0 |
| Approach | 336 | 3.0 | | 0.160 | | 4.9 | LOS A | 0.6 | 15.7 | | | | |
| North: Main Street | | | | | | | | | | | | | |
| Lane 1[d] | 109 | 3.0 | 900 | 0.121 | 100 | 5.1 | LOS A | 0.3 | 8.0 | Full | 1600 | 0.0 | 0.0 |
| Approach | 109 | 3.0 | | 0.121 | | 5.1 | LOS A | 0.3 | 8.0 | | | | |
| Intersection | 1188 | 3.0 | | 0.687 | | 10.5 | LOS B | 5.9 | 149.8 | | | | |

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

d Dominant lane on roundabout approach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# LANE SUMMARY

## Site: Route C & Main

PM Peak Hour
Roundabout

| Lane Use and Performance | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Demand Flows Total veh/h | HV % | Cap. veh/h | Deg. Satn v/c | Lane Util. % | Average Delay sec | Level of Service | 95% Back of Queue Veh | Dist ft | Lane Config | Lane Length ft | Cap. Adj. % | Prob. Block. % |
| South: Route C | | | | | | | | | | | | | |
| Lane 1[d] | 138 | 3.0 | 884 | 0.156 | 100 | 5.6 | LOS A | 2.7 | 70.4 | Full | 1600 | 0.0 | 0.0 |
| Lane 2 | 452 | 3.0 | 884 | 0.512 | 100 | 10.8 | LOS B | 2.7 | 70.4 | Short | 200 | 0.0 | 0.0 |
| Approach | 590 | 3.0 | | 0.512 | | 9.6 | LOS A | 2.7 | 70.4 | | | | |
| East: Route C | | | | | | | | | | | | | |
| Lane 1 | 376 | 3.0 | 952 | 0.395 | 100 | 8.2 | LOS A | 1.9 | 49.2 | Full | 1600 | 0.0 | 0.0 |
| Lane 2[d] | 376 | 3.0 | 952 | 0.395 | 100 | 8.2 | LOS A | 1.9 | 49.2 | Short | 150 | 0.0 | 0.0 |
| Approach | 752 | 3.0 | | 0.395 | | 8.2 | LOS A | 1.9 | 49.2 | | | | |
| North: Main Street | | | | | | | | | | | | | |
| Lane 1[d] | 210 | 3.0 | 722 | 0.290 | 100 | 8.5 | LOS A | 0.8 | 21.6 | Full | 1600 | 0.0 | 0.0 |
| Lane 2 | 175 | 3.0 | 701 | 0.250 | 86[5] | 8.1 | LOS A | 0.7 | 18.9 | Short | 150 | 0.0 | 0.0 |
| Approach | 385 | 3.0 | | 0.290 | | 8.3 | LOS A | 0.8 | 21.6 | | | | |
| Intersection | 1727 | 3.0 | | 0.512 | | 8.7 | LOS A | 2.7 | 70.4 | | | | |

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

5 Lane underutilisation determined by program
d Dominant lane on roundabout approach


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# Appendix D

Highway Safety Manual Analysis Results

See Attached Worksheets

| Route C between | $N_{spf}$ | CMF | | | | | $N_{ped}$ | $N_{biker}$ |
|---|---|---|---|---|---|---|---|---|
| | | On-Street Parking | Roadside Fixed Objects | Median Width | Lighting | Automated Speed Enforcement | | |
| I-49 SB Ramps to Schug Avenue | 0.464 | 1.00 | 1.00 | 1.00 | 0.93 | 1.00 | 0.016 | 0.008 |
| Schug Avenue to Main Street | 0.379 | 1.00 | 1.00 | 1.00 | 0.93 | 1.00 | 0.013 | 0.006 |
| Main Street to North Street | 0.171 | 1.00 | 1.00 | 1.00 | 0.93 | 1.00 | 0.006 | 0.003 |
| North Street to Center Street | 0.165 | 1.00 | 1.18 | 1.00 | 0.93 | 1.00 | 0.007 | 0.003 |
| Center Street to South Street | 0.548 | 1.00 | 1.19 | 1.00 | 0.93 | 1.00 | 0.022 | 0.011 |
| South Street to Private Drive | 0.100 | 1.00 | 1.07 | 1.00 | 0.93 | 1.00 | 0.000 | 0.000 |
| | | | | | | | | |
| | | | | | | | | |

| Route C at | $N_{spf}$ | CMF | | | | | | $N_{ped}$ |
|---|---|---|---|---|---|---|---|---|
| | | Left-Turn Lanes | Left-Turn Signal Phasing | Right-Turn | Right-Turn on Red | Lighting | Red Light | |
| Schug Avenue | 1.15 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 0.022 |
| Main Street | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 0.019 |
| North Street | 1.72 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 0.035 |
| Center Street | 1.24 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 0.025 |
| South Street | 0.91 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 0.018 |
| Peculiar Road | 0.74 | 1.00 | 1.00 | 1.00 | 1.00 | 0.91 | 1.00 | 0.014 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

# Appendix E

Preliminary Opinion of Probable Cost

See Attached Worksheets

Route C Short Term Improvements

| ITEM OF WORK | PROJECT QUANTITY | UNIT | UNIT PRICE | TOTAL |
|---|---|---|---|---|
| MOBILIZATION | 1 | L.S. | $70,000.00 | $70,000.00 |
| CONTRACTOR CONSTRUCTION STAKING | 1 | L.S. | $30,000.00 | $30,000.00 |
| EROSION CONTROL | 1 | L.S. | $25,000.00 | $25,000.00 |
| PAVEMENT REMOVALS | 10463 | S.Y. | $25.00 | $261,583.06 |
| EARTHWORK | 1 | L.S. | $20,000.00 | $20,000.00 |
| ROADWAY PAVEMENT | 6459 | S.Y. | $60.00 | $387,526.67 |
| DRIVEWAY PAVEMENT | 1605 | S.Y. | $50.00 | $80,273.83 |
| SHOULDER PAVEMENT | 721 | S.Y. | $45.00 | $32,455.00 |
| PARKING LOT PAVEMENT | 953 | S.Y. | $30.00 | $28,590.00 |
| CURB AND GUTTER | 690 | L.F. | $25.00 | $17,250.00 |
| PERMANENT SEEDING | 2917 | S.Y. | $2.50 | $7,292.78 |
| DRAINAGE | 1 | L.S. | $50,000.00 | $50,000.00 |
| TRAFFIC CONTROL | 1 | L.S. | $30,000.00 | $30,000.00 |

| | | |
|---|---|---|
| CONSTRUCTION COSTS | | $1,039,971.33 |
| DESGN | 12% of construction | $124,796.56 |
| INSPECTION | 10% of construction | $103,997.13 |
| CONSTRUCTION TESTING | 3% of construction | $31,199.14 |
| MODOT MAINTENANCE FEE | 10% of construction | $103,997.13 |
| MARC PROJECT FEE | 0.5% of construction | $5,199.86 |
| TOTAL PROJECT COST | | $1,409,161.16 |

TranSystems

## City of Peculiar, Missouri and MoDOT KC District
## Route C Improvements
## Cass County

### Estimate

| ITEM NO. | BID ITEM | UNITS | QUANTITY | UNIT COST | TOTAL |
|---|---|---|---|---|---|
| 1 | CLEARING AND GRUBBING | AC. | 12.0 | $ 1,500.00 | $ 18,000.00 |
| 2 | MOBILIZATION | L.S. | 1 | $ 50,000.00 | $ 50,000.00 |
| 3 | DEMOLITION AND REMOVAL OF IMPROVEMENTS | L.S. | 1 | $ 80,000.00 | $ 80,000.00 |
| 4 | EROSION CONTROL | L.S. | 1 | $ 50,000.00 | $ 50,000.00 |
| 5 | CONTRACTOR FURNISHED SURVEYING AND STAKING | L.S. | 1 | $ 20,000.00 | $ 20,000.00 |
| 6 | UNCLASSIFIED EXCAVATION | C.Y. | 1,342 | $ 8.00 | $ 10,736.59 |
| 7 | EMBANKMENT | C.Y. | 5,368.30 | $ 10.00 | $ 53,682.96 |
| 8 | GEOGRID FOR SUBGRADE | S.Y. | 16,105 | $ 2.50 | $ 40,262.22 |
| 9 | 4" TYPE 5 AGGREGATE BASE | S.Y. | 21,866 | $ 6.00 | $ 131,196.00 |
| 10 | 10 IN. ASPHALT PAVEMENT | S.Y. | 16,105 | $ 40.00 | $ 644,195.56 |
| 11 | 8 IN. CONCRETE MEDIAN STRIP | S.Y. | 1,314 | $ 30.00 | $ 39,406.67 |
| 12 | ASPHALT PARKING LOT (5") | S.Y. | 5,761 | $ 25.00 | $ 144,027.78 |
| 13 | DRIVEWAY , 6 IN. CONCRETE | S.Y. | 149 | $ 90.00 | $ 13,370.00 |
| 14 | CONCRETE SIDEWALK, 4 IN. | S.Y. | 222 | $ 60.00 | $ 13,333.33 |
| 15 | CURB, BARRIER CURB, CURB & GUTTER | L.F. | 11,801 | $ 28.00 | $ 330,428.00 |
| 16 | DRAINAGE | L.S. | 1 | $ 200,000.00 | $ 200,000.00 |
| 17 | FENCING | L.F. | 200 | $ 60.00 | $ 12,000.00 |
| 18 | SEEDING AND SODDING | AC. | 9 | $ 3,000.00 | $ 27,000.00 |
| 19 | TRAFFIC SIGNAL MOD. AT RAMP | L.S. | 1 | $ 50,000.00 | $ 50,000.00 |
| 20 | PAVEMENT MARKING AND SIGNING | L.S. | 1 | $ 25,000.00 | $ 25,000.00 |
| 21 | TRAFFIC CONTROL | L.S. | 1 | $ 20,000.00 | $ 20,000.00 |
| | | | **CONSTRUCTION TOTAL** | | **$ 1,973,000.00** |

**Does not include Lighting, Landscaping, Roundabout Monumentation, City Welcome Sign, or new sidewalks.**

| | | |
|---|---|---|
| **MARC Fee** | **$** | **9,900.00** |
| **MoDOT Maintenance Fee** | **$** | **197,300.00** |
| **Survey and Design** | **$** | **217,000.00** |
| **Right-of-Way Acquisition** | **$** | **50,000.00** |
| **Utility Relocation** | **$** | **20,000.00** |
| **Inspection** | **$** | **177,600.00** |
| **Construction Testing** | **$** | **7,900.00** |
| **Project Total** | **$** | **2,652,000.00** |

**RESOLUTION NO. 2015-61**

**A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI, APPROVING AND ACCEPTING THE MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION TRAFFIC ENGINEERING ASSISTANCE PROGRAM AGREEMENT (CASS COUNTY), MISSOURI, OF THE FINAL ENGINEERING STUDY OF THE ROAD SEGMENT ANALYSIS OF ROUTE C BETWEEN PECULIAR DRIVE AND SCHUG AVENUE**

**WHEREAS,** the Board of Aldermen previously approved the execution of the 2004 Corridor Traffic Study, and

**WHEREAS,** the Missouri Traffic Engineering Assistance Program has been awarded in the amount of $10,000 to the City of Peculiar in 80/20 grant funding,

**NOW THEREFORE,** be it ordained by the Board of Aldermen of the City of Peculiar, Missouri as follows:

> THE MISSOURI HIGHWAYS AND TRANSPORTATION COMMISSION TRAFFIC ENGINEERING ASSISTANCE PROGRAM FINAL ENGINEERING STUDY OF THE ROAD SEGMENT ANALYSIS OF ROUTE C BETWEEN PECULIAR DRIVE AND SCHUG AVENUE AS PREPARED BY TRANSYSTEMS

Section 1. That the Mayor is hereby authorized to execute on behalf of the City of Peculiar the above referenced RESOLUTION and Traffic Engineering Study.

Section 2. the effective date of the resolution shall be _____.

BE IT REMEMBERED THE PRECEDING RESOLUTION WAS ADOPTED ON THIS _____ DAY OF _____, 2015, BY THE FOLLOWING VOTE:

| | | | |
|---|---|---|---|
| Alderman Ford | ____ | Alderman Ray | ____ |
| Alderman Hammack | ____ | Alderman Roberts | ____ |
| Alderman McCrea | ____ | Alderman Turner | ____ |

APPROVED: ATTEST:

_____ _____

Holly Stark, Mayor Janet Burlingame, City Clerk

**City Administrator**
*Brad Ratliff*

**City Clerk**
*Janet Burlingame*

**City Engineer**
*Carl Brooks*

**Business Office**
*Trudy Prickett*

**Chief of Police**
*Harry Gurin*

**City Planner**
*Cliff McDonald*

**City Attorney**
*Reid Holbrook*

**Parks Director**
*Grant Purkey*

Municipal Offices – 250 S. Main Street, Peculiar, MO 64078
Phone: (816)779-5212 Facsimile: (816)779-1004

**To:** Mayor & Board of Aldermen
**From:** Carl Brooks, City Engineer (cbrooks@cityofpeculiar.com)
**Date:** December 7, 2015
**Re:** Resolution No. 2015-62, Mayor & Board of Alderman (BOA) Acceptance of the Business Plan for Municipal Broadband an Enterprise of the City of Peculiar. Missouri prepared by Universal Asset Management, LLC

## GENERAL INFORMATION

**Applicant:** City Staff
**Requested Actions:** Approval of resolution
**Purpose:** Acceptance of the Business Plan for Municipal Broadband an Enterprise of the City of Peculiar. Missouri prepared by Universal Asset Management, LLC.

**Property Location:** City wide

## PROPOSAL

Acceptance of the proposed Resolution No. 2015-62, by the Mayor & Board of Alderman (BOA) of the Business Plan for Municipal Broadband an Enterprise of the City of Peculiar. Missouri prepared by Universal Asset Management, LLC.
.

## PREVIOUS ACTIONS

The City issued a Request for Qualifications for the Fiber to the Home project. Two (2) firms submitted qualifications. Universal Asset Management, LLC was selected by City staff for the Fiber to the Home project.

Universal Asset Management, LLC made a presentation to the Mayor and BOA in September 2015.

## KEY ISSUES

The Business Plan for Municipal Broadband an Enterprise of the City of Peculiar. Missouri prepared by Universal Asset Management, LLC indicates that the City of Peculiar intends to construct a Fiber-to-the-Home (FTTH) 47 mile network to enable 100 Mbps broadband service, video, and other advanced broadband applications to 1,900 households , 5 business, and 3 critical community anchor institutions with the 8.44 square miles of "underserved" area of the city.

The report also provides a total project opinion of probable costs. The improvements total project cost is $6.5M in today's dollars.

## STAFF COMMENTS AND SUGGESTIONS

City staff agrees with the Business Plan for Municipal Broadband an Enterprise of the City of Peculiar. Missouri prepared by Universal Asset Management, LLC.

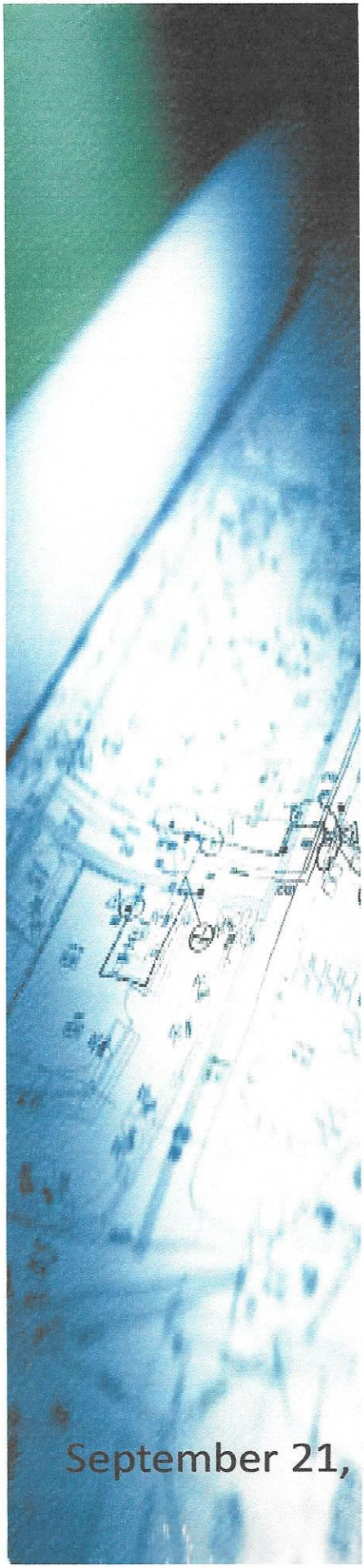
## STAFF RECOMMENDATION

City staff recommends passage of this resolution.

## ATTACHMENTS

Resolution 2015-62

Business Plan for Municipal Broadband an Enterprise of the City of Peculiar. Missouri prepared by Universal Asset Management, LLC.



# Business Plan

## *MUNICIPAL BROADBAND*

## *AN*

## *ENTERPRISE*

## *OF*

## *CITY OF PECULIAR, MISSOURI*


Prepared by:

Universal Asset Management, LLC

10401 Holmes Rd.

Suite 210

Kansas City, MO 64131


September 21, 2015

UNIVERSAL ASSET MANAGEMENT
Engineered Reliability

10401 Holmes Rd.
Kansas City, Missouri 64131
Phone: 816-887-4008

Carl Brooks, City Engineer
City of Peculiar, Missouri
250 S. Main Street
Peculiar, Mo 64078

RE: Business Case and Customer Survey Report

Dear Mr. Brooks:

Enclosed please find a copy of our completed "Business Case" report evaluating the feasibility of a municipal broadband network. This report includes the findings of a community survey intended to determine the interest of citizens in high speed broadband and their preference as to the role of the City in such an endeavor.

We have appreciated the support of the City in this effort and the time that local businesses and institutions afforded us in providing their inputs. If you have any questions regarding the content of this report or survey please contact me.

Gary M. Lee PE
President

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# I. INTRODUCTION

Peculiar, Missouri is a municipal government organization governed by a mayor and board of alderman. The city is managed by a professional staff lead by the city administrator.

The City of Peculiar proposes to facilitate the building and operating a fiber-to-the- home (FTTH) broadband communications network to bring broadband to their underserved citizens. The broadband initiative may be owned by the citizens of Peculiar and operated as either a municipal enterprise under the direction of the city or by a private company selected by the City. The City will design the network to ensure that community anchor institutions have access to very high-bandwidth broadband to provide essential services to the community as described herein.

The City government officials have engaged the local citizens. Public officials have reached out to every local organization both governmental and non-governmental in an attempt to fully inform and solicit public input. The response has been overwhelming. First and foremost the citizens view this as their project and their network. The citizens input and creative ideas have led to a wide range of improvements to this plan. It is the City's goal to keep this level of citizen involvement active throughout the life of this network. At the heart of this City lead project is better communications which drives the business, health, education and growth of their City.

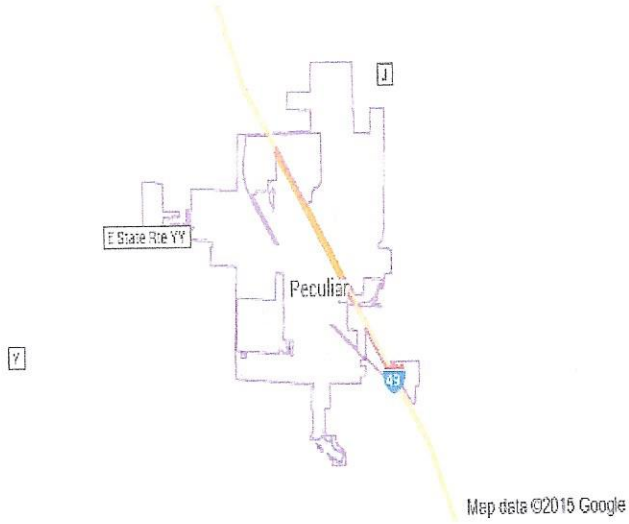
The City has engaged numerous local government and private stakeholders in developing a team approach to this endeavor. Businesses have provided evidence of how job creation will be enhanced, healthcare officials have illustrated the benefits to providing rural healthcare and education institutions have laid out their plans for using this network in expanding their services. All of this has been provided in a spirit of collaboration rarely seen in government. This City is committed to extending this spirit through implementation and on into the ongoing operation and management of the system itself. The City is leveraging the revenues anticipated by this system to provide allied services in the area of job incubators and improved water and sewer service systems.

The recirculation of currency within the local community in the form of reinvestment in local institutions and enterprises is a major goal of all the City's endeavor. In this manner, the City enhances its own destiny by providing a more sustainable community not only in economic terms but also in terms of natural and human resources.

# II. EXECUTIVE SUMMARY

The City of Peculiar intends to construct a Last Mile, Fiber-To-The-Home (FTTH) 47 mile network to enable 100 Mbps broadband service, video, VoIP telephony, distance learning, tele-medicine, and other advanced broadband applications to 1,900 households, 5 businesses, and 3 critical community anchor institutions within 8.44 square miles of "underserved" areas of the city. The estimated project cost is $6.5MM.

- 10 direct job years will be impacted in areas such as fiber installation, technicians, construction workers, project managers and network operators. Significantly more positions will be created through attraction of new business with broadband acting as a platform to create innovative new products and services.
- The proposed service area consists of 8.44 sq. mi.
- Over 90% of homes own computers although over 56% of homes lack access to high-speed broadband. The project will rectify this.




- 1 community anchor and critical community facilities, 1,900 households and 5 businesses will be served.
- Telecommuting to CenterPoint Intermodal Center and Honeywell will be facilitated for a City workforce.
- We will serve the chronically underserved.

# III. MISSION, STRATEGIES, ETC.

## 3.1 Vision

Peculiar Broadband envisions its enterprise as a national example of how to deploy and operate a publicly owned broadband network. This arm of the municipal government will provide the highest quality broadband service to its citizens, thus enhancing the provisions of basic services, public safety, education and job creation.

## 3.2 Mission

The mission of Peculiar Broadband is to provide the highest quality broadband service at an affordable cost to its residents, businesses and institutions. It will seek to provide applications over its high speed network in support of anchor institutions, thus encouraging the growth of jobs in the City.

## 3.3 Values

Peculiar Broadband seeks to conduct all of its business in the best interest of the citizens of the City; to abide by high ethical standards; to conduct business in a transparent and open atmosphere; and encourage professional growth in its staff through targeted training.

## 3.4 Objectives

The City of Peculiar has unique initiatives and complimentary economic development plans in place. The City is poised for explosive new economic development. Both risk suffocating in silence without access to high-speed broadband. Broadband is the missing piece of critical public infrastructure that neither private enterprise nor the City can fund alone. This report presents seven compelling points of impact that demonstrate the opportunities to create sustainable leverage through a broadband-enabled fiber network for the residents, businesses and critical community facilities of the City of Peculiar.

- ***First*** - While over 90% of homes own a computer, around 100% of homes in our service territory have no access to high-speed broadband equal to the capability that we propose to build. 90% percent of those surveyed, stated that they want reliable, high-speed broadband service. Current municipal conditions are obsolete compared to the technological change and innovation that are accelerating in this industry.
- ***Second*** - An Enhanced Enterprise Zones (EEZs) has been established in the city to attract business investments and spur economic development to disadvantaged areas. Building a broadband- enabled fiber network will ensure these EEZ companies have the connectivity and bandwidth required to compete regionally, nationally and globally.
- ***Third*** - The region's premier industrial park development, CenterPoint Interniodal Center, located just 8 miles north of Peculiar, in Jackson County has landed a new Honeywell facility and together they will employ 6,000 people. A broadband-enabled fiber network will mean telecommuting employment opportunities for six residents, which wouldn't otherwise be possible without broadband connectivity to perform these jobs. Feeder industries that could locate and grow in the City's EEZs will find it impossible to do so without high-speed broadband access.
- ***Fourth*** – The City currently has 2 providers serving the Internet market using dial-up, DSL, wireless, or other means. From our customer service survey we determined that there is low satisfaction with these providers who deliver sub-par service compared to the broadband service available in those served by the Google Network

in KC, MO. None of the competitors has adequate market share to support the financial investment required to build a broadband-enabled fiber-to-the-home network for the City.

- ***Fifth*** – The City's asset portfolio includes affordable land, a strong labor pool and a comprehensive network of highways. Without a communications infrastructure to match, the city of Peculiar cannot attract the investment necessary to generate economic development. It will remain on the wrong side of the Digital Divide.
- ***Sixth*** - Area schools increasingly rely on Internet to communicate between parents, teachers, students and the community. This includes grade reports, attendance, events, on-line classes and other communications. A broadband-enabled fiber network would springboard distance learning opportunities for citizens. The Raymore-Peculiar School District is currently served by More Net and has recently entered into a 10 year fiber lease with United Fiber. The district believes their current broadband needs are met by their relationship.
- ***Seventh*** - This project exemplifies collaborative local effort to enhance economic development. Broadband is the electricity of our generation. It is no longer a luxury. Without reliable high-speed internet, businesses, schools, libraries, hospitals, families, workers and students cannot compete, thrive or participate in a global economy that is advancing without them.

### 3.5 Strategy

The City will build a passive optical fiber-to-the-home network preferably on an open and non-discriminatory basis along existing electric distribution rights-of-way, with planned drops to every home. Utilizing existing rights-of-way eliminates adverse environmental impact.

Services offered over the network will include High Speed Internet access and triple-play broadband bundles from multiple Internet, video and voice providers as well as home security, video surveillance, distance learning, tele-medicine, and other future end-user applications. The network will also connect critical community anchor institutions and small businesses.

# IV. CUSTOMER EXPERIENCE

It is Peculiar Broadband's directive that all system design, operational schemes and network configurations focus first on the intended experience of the typical customer.

- Customers will access basic high speed data transmission and all related services by selecting one of several Internet options.
- Customers may access ancillary services through Peculiar Broadband approved affiliates including VOIP and Video services.
- Customers will be billed for data services directly by individual approved service providers.
- Customers will have a selection of video and VOIP providers through the Broadband system and will be billed directly for those services by the selected provider.

# V. SERVICE OFFERING

## 6.1 Description of Existing Services

Existing services in the proposed service area are very limited and include DSL provided by CenturyLink and high speed over cable provided by FairPoint and Comcast. In the case of DSL service, availability is limited by proximity to the Central Office. The same is true for high speed over cable.

Competitor speeds, markets and pricing are detailed in the "Competitive Service Offering" however current services have both limited availability and are expensive relative to the speed they deliver (in particular compared to our proposed pricing discussed below).

## 6.2 Suggested Pricing

The proposed plan will offer two residential service levels priced at $50.00 and $70.00 respectively, to give residents a choice of affordable alternatives based on their specific needs and financial situation.

The Entry Level service, priced at $50.00 per month offers a full 250Mbps downstream and 250Mbps upstream speed. For many families this level of service will more than satisfy their needs and at only $50.00 per month offers a true broadband experience at a price not much more than their current alternative.

The Highest Speed Level data package, which is priced at $70.00 per month, offers speeds of 1000Mbps downstream and 1000Mbps upstream. This package is designed for the serious internet user and offers exceptional download and upload capability ideal for file sharing, gaming and other uses. At only $70.00 per month the Highest Speed Level package is only slightly more than $10 dollars above the Pew study's national average for broadband expense, while delivering an outstanding option for those who seek exceptional speed for an additional cost.

Small Business packages will also be available with the Entry Level package priced at $99.95 per month and delivering 250Mbps downstream and 250Mbps upstream and the High Level package priced at $259.95 per month and delivering 1000Mbps downstream and 10Mbps upstream. These are outstanding speeds for small business application and compare favorably with the cost of DSL or Cable Data plans (if those services were available). The City will offer these packages to community anchor institutions as well however the City will apply a 25% discount to the above pricing for any anchor or small disadvantaged business.

The following "Competitor Service Offering" section provides information to compare competitive broadband services in the proposed service area. Again, a key point is that comparable services are NOT available to the majority of the residents covered in this application, so the comparisons are furnished to demonstrate that the proposed pricing is reasonable and affordable without respect to competition. Finally, the City's non-profit structure and community service focus motivates it over the long term to provide the service at rates that are attractive to its customers.

In summary, the City service plan will offer superior speeds at prices that are at or below those offered by competitors in the limited areas where they do exist. At $50.00 the residential Entry Level service package offers a price comparable to that of DSL. The Peculiar pricing and service plan will enable residents and businesses in the proposed

service area to experience broadband services that have superior performance characteristics at prices at or below national averages and those of any local competitor.

### 6.3 Competitive Service Offering

There are two major internet providers for City of Peculiar, Missouri zip code 64078 that supply wired/cable internet to residential lots: XFINITY by Comcast and EarthLink. Providers such as DISH and AT&T also supply internet to some areas of Peculiar but through satellite, Wi-Fi or dial-up means. These providers offer a wide variety of packages that include basic internet or added television channels.

The provider offering the largest selection of internet packages is XFINITY from Comcast. Ranging from 6Mbps to 250Mbps, their packages can also include HBO, Streampix, and local channels. The following is a list of XFINITY Comcast offers including the package name, data speed, and price range for each:[1,2]

- Performance Starter – 6Mbps (Download) – 1Mbps (Upload) - $29.99/Mo (First 12 Months)
- Performance 25 – 25Mbps (Download) - $39.99/Mo (First 12 Months)
- Performance – 50Mbps (Download) – 5Mbps (Upload) - $44.95/Mo (First 12 Months)
- Blast! – 105Mbps (Download) – 10Mbps (Upload) - $49.99/Mo (First 12 Months)
- Economy Plus – 3Mbps (Download) – .8Mbps (Upload) - $39.99/Mo
- Extreme 150 – 150Mbps (Download) – 20Mbps (Upload) - $114.95/Mo
- Extreme 250 – 3Mbps (Download) - $69.99/Mo Residential
- Extreme 250 – 3Mbps (Download) - $149.99/Mo Buisness

The second provider is Earth Link, a smaller company, and appears to only have one offer available in the Peculiar zip code. The offer is for a cable package at 20Mbps for $29.95 a month for the first six months. Other offers from Earth Link that are shown available in the 64078 zip code are dial-up connections.[3]

Fairpoint Communications offers an in-home router internet service with a maximum of 7 Mbps for $65 a month. This would require Fairpoint bringing internet to the home but devices would connect to the internet through a larger wireless router. The fastest service available through most residential areas of Peculiar, MO is 7 megabits per second.

[1]http://internetprovidersbyzip.com/service/xfinity-performance-starter-internet
[2]http://www.xfinity.com/internet-service.html?INTCMP=ILCCOMCOMHS165216
[3]http://internetprovidersbyzip.com/service/earthlink-cable-internet

# VI. TARGET MARKET

## 7.1 Customer Survey

*Survey Highlights*

- Over 95% of Peculiar, Missouri homes have computers, and virtually all of them access the Internet
- Over 85% of the residents want faster Internet.
- Nearly HALF are dissatisfied with the cost of their CURRENT Internet service
- 45% - are dissatisfied with the speed of their CURRENT Internet service
- The majority - over 88% - said they would likely switch to Broadband Internet if it was available.
- 77% of these surveyed believe the City should play some role in assisting in deploying a fiber network.
- 27% of those surveyed believe the City should only to solicit interest from private companies to build a fiber network.
- 23% believe the City should play no role.

*Survey Methodology*

A phone survey was complete by Triton fully supervised by Universal Asset Management. Prior to the beginning of data collection, all surveyors were trained specifically on each survey question and its response set. At least once per shift, each surveyor was monitored on-line while conducting an actual survey.

In order to generate a random probability of households, the calling list provided to Triton was randomized prior to outbound dialing. The completed sample response includes 200 residents. This sample size will generate data useful in making business decisions based on commonly accepted statistical norms at the 95% confidence level with a margin of error of +/-6%, assuming an overall population of approximately 1,900 residents.

In addition, the City conducted an on-line survey soliciting input from 500 City resident email addresses – 179 residents responded to the survey. The "survey monkey" used in this effort was identical to the phone survey.

The results of both surveys have been compiled and are illustrated in the table located in Appendix F.

## 7.2 Customer Potential

The Peculiar Broadband network will traverse approximately 47 fiber miles, passing 1,900 residences, 5 businesses and 1 critical anchor institution.

# VII. MARKETING AND SALES

## 8.1 Market Strategy

It is the strategy to focus primarily on the sale of high speed connectivity and related Internet services as Peculiar Broadband's core business and expertise. Initially, the City will make Voiceover Internet Protocol (VOIP) and Video services through approved vendors subject to an RFP/RFQ process. It is generally envisioned that accessing traditional voice and video services from dedicated service providers will eventually diminish over time as more and more providers appear on the World Wide Web and their services offerings become ever more robust and sophisticated. This will particularly be the case as Internet Protocol TV (IPTV) evolves over the next ten years. While this plan contemplates the decrease in the reliance on traditional carriers of traditional voice and video over the next five years, it envisions a companion increase in high speed data services required by similar content and services now being delivered over the Internet. Using this approach to future projections it is anticipated that Peculiar Broadband can reduce its market risk.

In addition to basic Internet service, Peculiar Broadband may offer email and web services along with hosting special applications developed specifically for broadband use. To make certain that applications are provided that meet the needs of City institutions and businesses a strategic planning committee has been launched to solicit public/stakeholder guidance in deploying the highest priority applications and insuring that the network design supports these efforts.

It is further recognized that both the younger and older population of the City may have specific needs to assure wide acceptance and use of broadband services. For this reason stakeholders representing these demographics have been added to the strategic planning process.

It is intended to acquire customers using the "rural water district" model. The creation of a rural water district is similar to this endeavor in many ways. The City is starting this initiative with a water and sewer utility customer base, water and sewer infrastructure and an existing enterprise organization. There is good reason to use this model:

1) It has been refined over the years by USDA and it works.
2) Some of the City's potential customers are customers of a rural water district and therefore familiar with the methodology.

The model works as follows:

1) A user agreement is developed which requires the signer to agree to the following:
   a) Payment of an initial fee of $50.00
   b) Subscribe to at least the minimum Internet services plan for one year.
   c) Provide an easement across their property and right to install an Optical Network Terminal (ONT) on their building being served including a perpetual right of egress to maintain equipment.
   d) Customer acknowledges that they are responsible for providing power to the ONT.
2) A City-wide sales effort is launched to sign up as many customers as possible

3) Customers will be directed to several locations to sign up for service including bank branches, water district offices, city halls, etc.
4) All user agreement signatures must be attested by a notary so that they may be properly recorded with the City's recorder of deeds
5) Once user agreements have been recorded, provision of service begins in concert with the construction of the network

A sample user agreement is show below:

## BROADBAND USERS AGREEMENT

This agreement entered into between Peculiar Broadband, a Broadband service provider, hereinafter called the "Agency," and _____, hereinafter called "Customer."

**WITNESSETH**

Whereas, the Customer desires to purchase broadband services from the Agency and to enter into a broadband users agreement as required by the infrastructure build-out team as set forth by the Agency.

NOW THEREFORE, in consideration of the mutual covenants, promises, and agreements herein contained, it is hereby understood and agreed by the parties hereto as follows:

The Agency shall furnish, subject to industry standards and Rules and Regulations now enforced or as hereafter amended, such quantity of services as Customer may desire in connection with Customer's occupancy of the following described property:

1. Commonly known as _____
2. Legal property address _____
3. Legally described as _____

_____

_____

_____

The Agency shall install at the Agency's expense an ONT (Optical Network Termination device), a point of termination/demarcation and service lines which shall begin outside the home and extend to the property line, drop. The Agency shall have exclusive right to mount an ONT and physical drop to the premise. The service line (drop) shall connect with the ONT of the Agency at the nearest place of desired use by the Customer, provided the Agency has determined in advance that the system has sufficient capacity to permit delivery of Broadband Services at that point.

The Customer agrees to grant to the Agency, its successors and assigns, a perpetual easement in, over, under and upon the above-described land, with the right to erect, construct, install, and lay, and thereafter use, operate, inspect, repair, maintain, replace, and remove services lines and appurtenant facilities, together with the right to utilize adjoining lands belonging to the Customer for the purpose of ingress to and egress from the above-described lands.

The Customer shall install and maintain at the Customer's expense all inside wiring from the Customer's side of the ONT and extend to the dwelling or place of use. The service line (drop) shall connect to the Agency's ONT.

The Customer also agrees to be fully responsible for the inside wiring from the ONT to the home including the installation of approved devices if required.

The Customer agrees to comply with and be bound by the Articles, Rules and Regulations of the Agency, now in force, or as hereafter duly and legally supplemented, amended, or changed. The Customer also agrees to pay Broadband rates, time, and place as shall be determined by the Agency , and agrees to the imposition of such penalties for noncompliance as are now set out in the Agency 's Rules and Regulations, or which may be hereafter adopted and imposed by the Agency .

The Customer agrees to pay an installation fee in the amount of $50.00. In the event service to the Customer is terminated, either voluntarily by the Customer, or by the Agency for cause, the deposit shall be held and applied by the Agency to any unpaid balance then owing on the Customer's account.

Should the account be fully paid at the time of termination of service to the Customer, the deposit shall be refunded by the Agency within a reasonable time thereafter.

The Agency shall have final authority in any question of location of any service line connection to its Broadband (ONT); shall determine the services requested; and may shut off services to a Customer who allows a connection or extension to be made of the customer's service line for the purpose of supplying Broadband services to another user. In the event the total Broadband services shall be insufficient to meet all of the needs of the Customers, or in the event there is a shortage of Broadband capacity, the Agency may prorate the services available among the various Customers on such basis as is deemed equitable.

The Customers agrees that no other present or future source of interconnection will be made to any lines served by the Agency 's lines and will disconnect from the present Broadband facilities prior to connecting to and switching to the Agency 's system and shall eliminate their present or future cross-connections in the Customer's system.

The Customer or Representative shall connect the inside wiring to the Agency's ONT and shall commence to use Broadband services from the system on the date the service is made available, to the Customer by the Agency. Broadband service charges to the Customer shall commence on the date service is made available, regardless of whether the Customer connects to the system.

In the event the Customer shall breach this contract by refusing or failing, without just cause, to connect a service line to the Agency 's distribution system as set forth above, the Customer agrees to pay the Agency a lump sum of ($100.00) Dollars ($) as liquidated damages.

It is expressly understood and agreed by the parties hereto that the said amount is agreed upon as liquidated damages in that a breach by the Customer in either of the respects set forth above would be difficult, if not impossible, to prove the amount of such damages. The parties hereto have computed, estimated, and agreed upon said sum in an attempt to make a reasonable forecast of probable actual loss because of the difficulty of estimating with exactness the resulting damages.

The failure of a customer to pay service charges duly imposed shall result in the automatic imposition of the following penalties:

1. Nonpayment within ten days from the due date will be subject to a penalty of ten percent of the delinquent account.
2. Nonpayment within thirty days from the due date will result in the services being shut off from the Customer's property.
3. In the event it becomes necessary for the Agency to shut off the services from a Customer's property, a fee set by the Agency in its rate schedule will be charged for a reconnection of the service.

IN WITNESS WHEREOF, we have executed this agreement this _____ day of _____, 20____.

SEAL

_____

(Name of Agency)

_____

President

ATTEST:

_____

Customer

_____

Customer

_____

Customer

# VIII. TECHNOLOGY

## 9.1 Capacity Planning

Last Mile – Internet service bandwidth needs have been increasing rapidly over the last 10 years. From real life experience the amount of internet bandwidth currently needed is in a mini-max range of 28 to 45 Mbps per 1000 customers. This number is expected to approximately triple current rates to 87 to 138 Mbps. The Peculiar network with (based approximately on 65% penetration) 1,235 customers would need internet bandwidth of 1000 Mbps with allowance to grow to 2 Gbps as needed. The network is scheduled to be completed over a two year period and actual bandwidth needs will be forecast throughout the construction process. Electronic network equipment and the appropriate software will be selected to capture and archive the utilization data both to look for network congestion, throughput and latency, as well as forecast actual growth. Additional bandwidth will be provisioned well ahead of the actual need. The last mile systems' internet will be deployed using the GPON Standard protocols and there are several software tools available to monitor and forecast bandwidth available.

## 9.2 System Design

The type of system planned is a bi-directional FTTH (Fiber To The Home) network using GPON (Gigabit Passive Optical Network) electronics. The service available will depend on the local market but 1000 Mbps symmetrical service to every home can be easily provided. Video and voice services will also be offered. The network will be an open network model, with competing services available.

A bi-directional FTTH (Fiber to the Home) network using EPON (Ethernet Passive Optical Network), GPON or FRoG electronics to allow The City of Peculiar to transport broadband services throughout their service area. The network will be designed to initially transport high speed data services and will also be designed to include voice and video services as well, at a later date to be determined in the City's sole discretion. Our initial recommendation is to use EPON.

The project includes approximately 1900 passings using 47 miles of fiber optic network.

The size of the digital service provisioned to support the network will be determined by the network's demand. The actual optical service ties between the office and optical distribution cabinets located at each hub will be a 10GigE.

From the Headend or each Hub a fiber network using the distributed tap architecture will be designed to serve the area.

Fiber routes will be laid out logically to economically connect each service group back to the Optical Distribution cabinet located at the Headend or each Hub. Network architecture will be a star design with the possibility to ring the network in the future. There will be four distinct fibers designated to each Hub plus additional fibers as needed

to allow for growth and business opportunities. As in a typical fiber network design there will be one fiber designated for each group of 32 passings plus spares. There may be other services or network fibers added to this number when finalizing the network design.

Although the optical link budgets and electronics are identical to a typical fiber network build, the network will not employ 1:32 splitters but will use a design distributing optical taps throughout the serving area enabling the overall average fiber count to be reduced, allowing for less up front capital and efficient longer term maintenance. This will allow each drop to be connectorized simplifying the installation process and result in a more efficient overall cost per mile.

Penetration is modeled at 70% of the homes passed for internet service.

The Optical Network Terminal will be capable of providing video, Ethernet and telephone connections.

# IX. OPERATIONAL PLAN

## 10.1 Services Provided

The City intends to contract with an experienced firm to operate the system or provide service over their networks.

The attached process model illustrates the services to be provided in the execution of O&M tasks and system management responsibilities. Each of the elements shown in this diagram has been expanded with more detailed process mapping.

# X. FUNDING

It would be most desirable to attract a private company that would finance the deployment of the proposed broadband network. If such a private entity cannot be obtained it is suggested that a private-public partnership be considered. Under such an arrangement the City may consider expanding its water and sewer enterprise to include the fiber network. Under such an arrangement the fiber network would be funded using tax-exempt municipal revenue bonds combined with the water and sewer enterprise fund. Such bonds would be re-paid from the proceeds of the fiber network.

If such a plan were adopted, it is suggested that in addition to the fiber network funding, funds also be provided to upgrade the existing water meters to SMART – automatic metering with communications being provided by the fiber network. This would add approximately $500,000 to the project cost. It is also suggested that the supervisory monitoring and control system be enhanced for the water and sewer utility again with communication provided by the fiber network. This would add approximately $200,000 to the project cost.

The total cost of the proposed project is as follows:

| | |
|---|---|
| ▪ Fiber Network | $6,500,000 |
| ▪ PMI – SMART Meters | $500,000 |
| ▪ SCADA – Control Upgrade | $200,000 |
| | $7,200,000 |

Another option to consider deploying is an initial project phase based upon the most economical construction areas (those areas where the cost of the network per subscriber is below $5,000). If this plan was adapted FDHs (Fiber Distribution Hubs – See Appendix A) 5,6,8 & 10 would be delayed as their unit subscriber construction costs range from $5,000 to $10,000 each.

The project cost for this approach as a phase 1 would be as follows:

| | |
|---|---|
| ▪ Fiber Network | $4,400,000 |
| ▪ PMI – SMART Meters | $350,000 |
| ▪ SCADA – Control Upgrade | $200,000 |
| | $4,950,000 |

# XI. IMPLEMENTATION

The City survey indicated an even split in citizen response between preferring minimal to "no" City involvement in securing a broadband network to preferring significant City participation. It is therefore suggested that a request for proposal be considered that would seek proposals based upon the following options:

1. Total private ownership including operation and maintenance.
2. Municipal finance and ownership of assets but private operation and maintenance.

The decision with regards to deployment of the broadband network would depend upon the responses received. The second alternative is a private-public partnership arrangement.

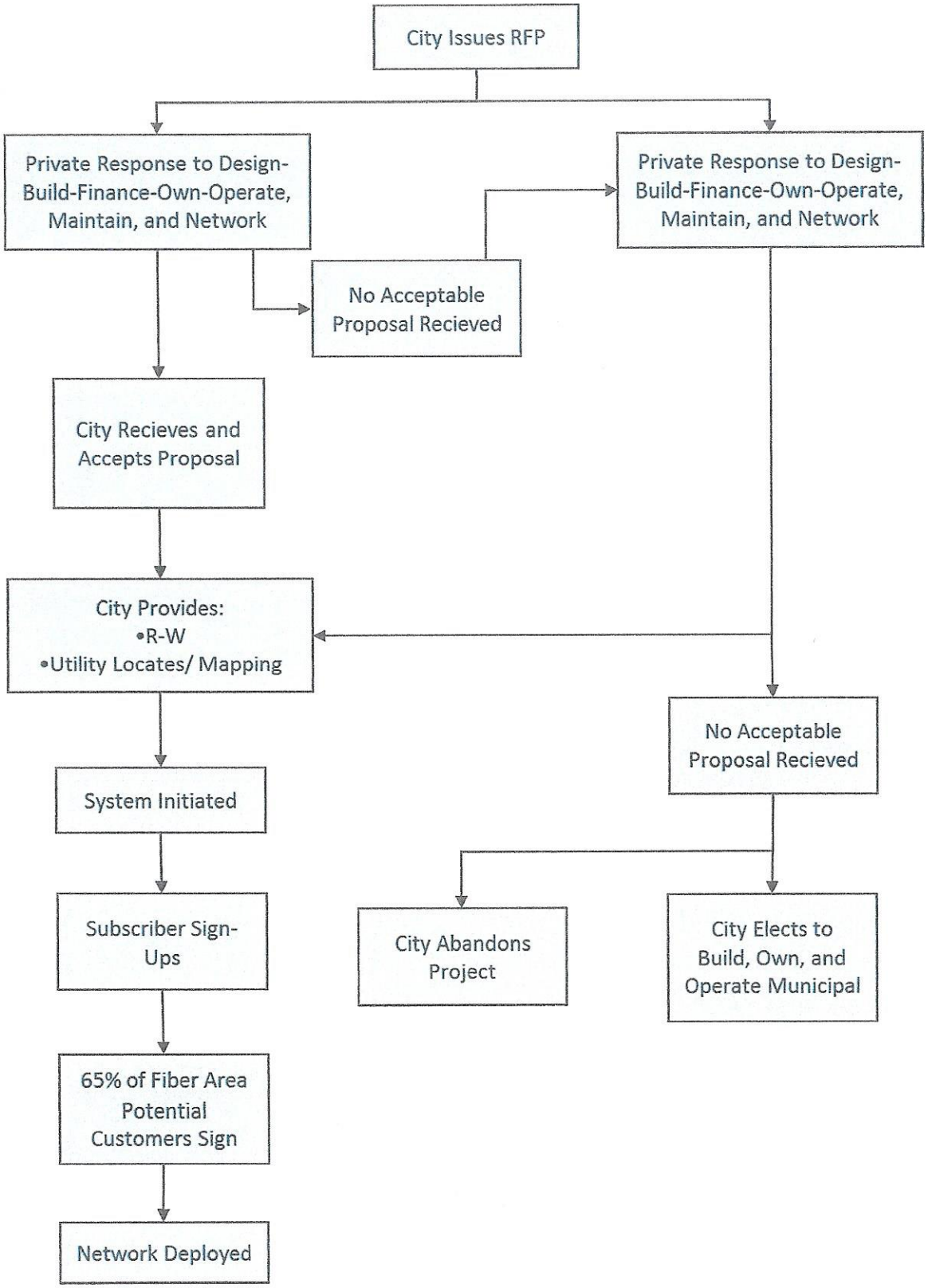
**A public-private partnership (PPP)** is a government service or private business venture which is funded and operated through a partnership of government and one or more private sector companies. These schemes are sometimes referred to as PPP.

PPP involves a contract between a public sector authority and a private party, in which the private party provides a public service or project and assumes substantial financial, technical and operational risk in the project. In some types of PPP, the cost of using the service is borne exclusively by the users of the service and not by the taxpayer.[1] In other types (notably the private finance initiative), capital investment is made by the public sector on the basis of a contract with the private entity or entities to provide agreed services and the cost of providing the service is borne wholly by the Private Entity. Government contributions to a PPP may also be in kind (notably the transfer of existing assets). In projects that are aimed at creating public goods like in the infrastructure sector, the government may provide a capital in the form of providing access to low interest long term tax exempt financing. In this project it is proposed that the water and sewer utilities be combined with proposed fiber network. In this scenario the City would own the asset of the network while the private entity or entities would be responsible for providing services including operation and maintenance of the system.

Under this plan the City would control the design and construction of the network with the private entity or entities assuming responsibility for the headend equipment, customer service, operations and system maintenance. The contracts entered into between the public and private entities would detail service level requirements and the public entity would exercise strict control over the enforcement of those service level objectives. The City would prepare requests for proposals detailing all work scopes and specifications for services to be provided by the private entities. All proposals would be received by the City in an open competitive process in compliance with city ordinances and State of Missouri statutes.

## 13.1 General

The following process map outlines the implementation plan. It is planned to begin construction in January and to complete construction 24 months later.


City Issues RFP
Private Response to Design-Build-Finance-Own-Operate, Maintain, and Network
Private Response to Design-Build-Finance-Own-Operate, Maintain, and Network
No Acceptable Proposal Recieved
City Recieves and Accepts Proposal
City Provides:
•R-W
•Utility Locates/ Mapping
No Acceptable Proposal Recieved
System Initiated
Subscriber Sign-Ups
City Abandons Project
City Elects to Build, Own, and Operate Municipal
65% of Fiber Area Potential Customers Sign
Network Deployed

It is suggested that if an RFP is initiated by the City that potential responders should have 60 days to respond. Thus if an RFP was tendered on Nov. 1, 2015 all proposals would be due by Jan 1, 2015. In consideration of the holidays associated with this time period it is suggested that the tender period be extended to Feb. 1, 2016.

Allowing for proposal review and negotiations, it is likely that a contract could be obtained on or about April 1, 2016. The buildout of the project is likely to require two years but could be deployed sooner depending upon subscriber sign-up response time.

## 13.2 Pro Forma

# Proforma

## City Of Peculiar, Missouri

| Revenue | |
|---|---|
| Video | $ 50.00 |
| Data | $ 65.00 |
| Voice | $ 20.00 |
| Business HSD | $ 200.00 |
| Installation fees (per connect) | $ 50.00 |
| Wholesale | |

| Costs of Goods Sold | |
|---|---|
| Video Program Cost | $ 36.00 |
| Internet Connectivity | |
| Telephone | $ 15.00 |
| Pole Rental | $ - |

| Expenses | Annual Inflation Factor | Test Year Annual Cost |
|---|---|---|
| Salaries & Wages | See Salaries Tab | |
| Employee Insurance Group, Health Life | See Salaries Tab | |
| Taxes Payroll | See Salaries Tab | |
| Paryroll Service Expense | See Salaries Tab | |
| Consulting Fees | 2% | $ 15,000 |
| Service Call Maintenance | From Pulse Model | |
| Equipment | 2% | $ 20,000 |
| Legal & Accounting Fees | 2% | $ 5,000 |
| Travel | 2% | $ 2,000 |
| Training & Education | 2% | $ 2,000 |
| Advertising | 2% | $ 7,500 |
| Dues & Subscriptions | 2% | $ 500 |
| Fees & Licenses | 2% | $ 1,000 |
| Postage & Shipping | 2% | $ 5,000 |
| Telephone & Communication | 2% | $ 1,200 |
| Computer Expense | 2% | $ 2,500 |
| Meals & Entertainment | 2% | $ 500 |
| Rents & Utilities | 2% | $ 10,000 |
| Misc. Expense | 2% | $ 25,000 |
| Management Fee | 2% | $ 7,500 |

| Capital Expenditures | |
|---|---|
| Installation (per customer connect) | $ - |
| Video CPE | $ - |
| Data CPE | $ - |
| Telephone CPE | $ - |
| | |
| | |
| Non-RUS Debt Amount | $ 6,477,894.77 |
| Non RUS Interest Rate (APR) | 4% |
| Non Rus Loan Term (Years) | 20 |
| | |
| | |
| RUS Loan Rate (APR) | 4.0% |
| RUS Loan Term (Years) | 20 |

# Proforma

## City Of Peculiar, Missouri

| Project Costs | Budget Original |
|---|---|
| NETWORK & ACCESS EQUIPMENT | $ 932,980 |
| OUTSIDE PLANT | $ 4,725,355 |
| SUBSCRIBER EQUIPMENT | $ - |
| BILLING SUPPORT AND OPERATIONS SUPPORT SYSTEMS | $ 25,000 |
| OPERATING EQUIPMENT (vehicles, office equipment, etc.) | $ 15,000 |
| PROFESSIONAL SERVICES | $ 629,560 |
| START UP COSTS | $ 50,000 |
| OTHER | $ 100,000 |
| Total | $ 6,477,895 |
| | |
| Total For Project | $ 6,477,894.77 |

## Broadband Income Statement

| | Quarter 5 | Quarter 6 | Quarter 7 | Quarter 8 | Quarter 9 | Quarter 10 | Quarter 11 | Quarter 12 | Quarter 13 | Quarter 14 | Quarter 15 | Quarter 16 | Quarter 17 | Quarter 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Revenues** | | | | | | | | | | | | | | |
| Video | $ 62,165 | $ 62,165 | $ 62,165 | $ 62,165 | $ 64,030 | $ 64,030 | $ 64,030 | $ 64,030 | $ 65,950 | $ 65,950 | $ 65,950 | $ 65,950 | $ 67,929 | $ 67,929 |
| Data | $ 183,074 | $ 183,074 | $ 183,074 | $ 183,074 | $ 183,074 | $ 183,074 | $ 183,074 | $ 183,074 | $ 183,074 | $ 183,074 | $ 183,074 | $ 183,074 | $ 183,074 | $ 183,074 |
| VOIP | $ 27,172 | $ 27,172 | $ 27,172 | $ 27,172 | $ 27,987 | $ 27,987 | $ 27,987 | $ 27,987 | $ 28,826 | $ 28,826 | $ 28,826 | $ 28,826 | $ 29,691 | $ 29,691 |
| Business HSD | $ 6,180 | $ 6,180 | $ 6,180 | $ 6,180 | $ 6,365 | $ 6,365 | $ 6,365 | $ 6,365 | $ 6,556 | $ 6,556 | $ 6,556 | $ 6,556 | $ 6,753 | $ 6,753 |
| Installation fees (per connect) | $ 2,088 | $ 2,088 | $ 2,088 | $ 2,088 | $ 2,150 | $ 2,150 | $ 2,150 | $ 2,150 | $ 2,215 | $ 2,215 | $ 2,215 | $ 2,215 | $ 2,281 | $ 2,281 |
| Wholesale | | | | | | | | | | | | | | |
| Total | $ 280,678 | $ 280,678 | $ 280,678 | $ 280,678 | $ 283,606 | $ 283,606 | $ 283,606 | $ 283,606 | $ 286,622 | $ 286,622 | $ 286,622 | $ 286,622 | $ 289,728 | $ 289,728 |
| **Costs of Goods Sold** | | | | | | | | | | | | | | |
| Video Program Cost | $ 44,759 | $ 44,759 | $ 44,759 | $ 44,759 | $ 46,101 | $ 46,101 | $ 46,101 | $ 46,101 | $ 47,484 | $ 47,484 | $ 47,484 | $ 47,484 | $ 48,909 | $ 48,909 |
| Internet Connectivity | $ 13,562 | $ 13,562 | $ 13,562 | $ 13,562 | $ 13,562 | $ 13,562 | $ 13,562 | $ 13,562 | $ 13,562 | $ 13,562 | $ 13,562 | $ 13,562 | $ 13,562 | $ 13,562 |
| Telephone | $ 18,106 | $ 18,106 | $ 18,106 | $ 18,106 | $ 18,106 | $ 18,106 | $ 18,106 | $ 18,106 | $ 18,106 | $ 18,106 | $ 18,106 | $ 18,106 | $ 18,106 | $ 18,106 |
| Pole Rental | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Total | $ 76,427 | $ 76,427 | $ 76,427 | $ 76,427 | $ 77,769 | $ 77,769 | $ 77,769 | $ 77,769 | $ 79,152 | $ 79,152 | $ 79,152 | $ 79,152 | $ 80,577 | $ 80,577 |
| **Gross Profit** | $ 204,251 | $ 204,251 | $ 204,251 | $ 204,251 | $ 205,836 | $ 205,836 | $ 205,836 | $ 205,836 | $ 207,469 | $ 207,469 | $ 207,469 | $ 207,469 | $ 209,151 | $ 209,151 |
| **Operating Expenses** | | | | | | | | | | | | | | |
| Salaries & Wages | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 |
| Employee Insurance Group, Health Life | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 |
| Taxes Payroll | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 |
| Paryroll Service Expense | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 |
| Consulting Fees | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| Repairs & Maintenance | $ 3,232 | $ 3,232 | $ 3,232 | $ 3,232 | $ 3,232 | $ 3,232 | $ 3,232 | $ 3,232 | $ 3,232 | $ 3,232 | $ 3,232 | $ 3,232 | $ 3,232 | $ 3,232 |
| Equipment | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| Legal & Accounting Fees | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 |
| Travel | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 |
| Training & Education | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 |
| Advertising | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| Dues & Subscriptions | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 |
| Fees & Licenses | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 |
| Postage & Shipping | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 |
| Telephone & Communication | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Computer Expense | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 |
| Meals & Entertainment | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 |
| Rent & Utilities | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 |
| Misc. Expense | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| Management Fee | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| Total | $ 64,114 | $ 64,114 | $ 64,114 | $ 64,114 | $ 64,114 | $ 64,114 | $ 64,114 | $ 64,114 | $ 64,114 | $ 64,114 | $ 64,114 | $ 64,114 | $ 64,114 | $ 64,114 |
| **Operating Profit** | $ 140,137 | $ 140,137 | $ 140,137 | $ 140,137 | $ 141,722 | $ 141,722 | $ 141,722 | $ 141,722 | $ 143,355 | $ 143,355 | $ 143,355 | $ 143,355 | $ 145,037 | $ 145,037 |
| Interest Expense | $ 62,631 | $ 62,105 | $ 61,584 | $ 61,067 | $ 60,554 | $ 60,046 | $ 59,541 | $ 59,042 | $ 58,546 | $ 58,054 | $ 57,567 | $ 57,084 | $ 56,604 | $ 56,129 |
| Principal Payment | $ 52,581 | $ 52,140 | $ 51,702 | $ 51,268 | $ 50,838 | $ 50,411 | $ 49,988 | $ 49,568 | $ 49,152 | $ 48,739 | $ 48,330 | $ 47,924 | $ 47,522 | $ 47,123 |
| Net Income | $ 24,925 | $ 25,892 | $ 26,851 | $ 27,802 | $ 30,331 | $ 31,266 | $ 32,193 | $ 33,113 | $ 35,657 | $ 36,562 | $ 37,458 | $ 38,347 | $ 40,911 | $ 41,785 |
| Principal and Interest | $ 115,212 | $ 114,245 | $ 113,286 | $ 112,335 | $ 111,392 | $ 110,456 | $ 109,529 | $ 108,609 | $ 107,698 | $ 106,793 | $ 105,897 | $ 105,008 | $ 104,126 | $ 103,252 |
| Coverage | 1.22 | 1.23 | 1.24 | 1.25 | 1.27 | 1.28 | 1.29 | 1.30 | 1.33 | 1.34 | 1.35 | 1.37 | 1.39 | 1.40 |

## Broadband Personnel (Salaries and Benefits)

| Personnel | # of Employees | Starting Salaries Including Benefits Per Employee | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Quarter 5 | Quarter 6 | Quarter 7 | Quarter 8 | Quarter 9 | Quarter 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Manager | 1 | $ 65,000.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 |
| Assistant Manager | 0 | $ 60,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Secretary/Receptionist | 1 | $ 25,000.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 |
| Network Manager | 1 | $ 45,000.00 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 |
| Maintenance Tech | 1 | $ 40,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 |
| Call Center Operator | 1 | $ 25,000.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 |
| Sales Manager | 0 | $ 60,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Account Executive | 0 | $ 55,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Product Development | 0 | $ 45,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Strategic Planning | 0 | $ 40,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Bookkeeper | 0.25 | $ 55,000.00 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 |
| Information Technology (IT) | 0.25 | $ 50,000.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 |
| Legal | 0 | $ 50,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Billing/Collections | 0 | $ 30,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Totals | 5.5 | | $ 46,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 |

| Personnel | Quarter 11 | Quarter 12 | Quarter 13 | Quarter 14 | Quarter 15 | Quarter 16 | Quarter 17 | Quarter 18 | Quarter 19 | Quarter 20 |
|---|---|---|---|---|---|---|---|---|---|---|
| Manager | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 |
| Assistant Manager | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Secretary/Receptionist | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 |
| Network Manager | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 |
| Maintenance Tech | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 |
| Call Center Operator | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 |
| Sales Manager | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Account Executive | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Product Development | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Strategic Planning | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 |
| Bookkeeper | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 |
| Information Technology (IT) | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Legal | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Billing/Collections | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Totals | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 |

**OPERATING EXPENSES**

| | Inflation Factor | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Quarter 5 | Quarter 6 | Quarter 7 | Quarter 8 | Quarter 9 | Quarter 10 | Quarter 11 | Quarter 12 | Quarter 13 | Quarter 14 | Quarter 15 | Quarter 16 | Quarter 17 | Quarter 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Consulting Fees | 3% | $ 1,000 | $ 1,008 | $ 1,015 | $ 1,023 | $ 1,030 | $ 1,038 | $ 1,046 | $ 1,054 | $ 1,062 | $ 1,070 | $ 1,078 | $ 1,086 | $ 1,094 | $ 1,102 | $ 1,110 | $ 1,119 | $ 1,127 | $ 1,135 |
| Repairs & Maintenance | 3% | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Equipment | 3% | $ 1,000 | $ 1,008 | $ 1,015 | $ 1,023 | $ 1,030 | $ 1,038 | $ 1,046 | $ 1,054 | $ 1,062 | $ 1,070 | $ 1,078 | $ 1,086 | $ 1,094 | $ 1,102 | $ 1,110 | $ 1,119 | $ 1,127 | $ 1,135 |
| Legal & Accounting Fees | 3% | $ 500 | $ 504 | $ 508 | $ 511 | $ 515 | $ 519 | $ 523 | $ 527 | $ 531 | $ 535 | $ 539 | $ 543 | $ 547 | $ 551 | $ 555 | $ 559 | $ 563 | $ 568 |
| Travel | 3% | $ 100 | $ 101 | $ 102 | $ 102 | $ 103 | $ 104 | $ 105 | $ 105 | $ 106 | $ 107 | $ 108 | $ 109 | $ 109 | $ 110 | $ 111 | $ 112 | $ 113 | $ 114 |
| Training & Education | 3% | $ 500 | $ 504 | $ 508 | $ 511 | $ 515 | $ 519 | $ 523 | $ 527 | $ 531 | $ 535 | $ 539 | $ 543 | $ 547 | $ 551 | $ 555 | $ 559 | $ 563 | $ 568 |
| Advertising | 3% | $ 1,000 | $ 1,008 | $ 1,015 | $ 1,023 | $ 1,030 | $ 1,038 | $ 1,046 | $ 1,054 | $ 1,062 | $ 1,070 | $ 1,078 | $ 1,086 | $ 1,094 | $ 1,102 | $ 1,110 | $ 1,119 | $ 1,127 | $ 1,135 |
| Dues & Subscriptions | 3% | $ 125 | $ 126 | $ 127 | $ 128 | $ 129 | $ 130 | $ 131 | $ 132 | $ 133 | $ 134 | $ 135 | $ 136 | $ 137 | $ 138 | $ 139 | $ 140 | $ 141 | $ 142 |
| Fees & Licenses | 3% | $ 250 | $ 252 | $ 254 | $ 256 | $ 258 | $ 260 | $ 261 | $ 263 | $ 265 | $ 267 | $ 269 | $ 271 | $ 273 | $ 276 | $ 278 | $ 280 | $ 282 | $ 284 |
| Postage & Shipping | 3% | $ 200 | $ 202 | $ 203 | $ 205 | $ 6,000 | $ 6,045 | $ 6,090 | $ 6,136 | $ 6,182 | $ 10,679 | $ 10,759 | $ 10,840 | $ 10,921 | $ 11,003 | $ 11,086 | $ 11,169 | $ 11,252 | $ 11,337 |
| Telephone & Communication | 3% | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Computer Expense | 3% | $ 500 | $ 504 | $ 508 | $ 511 | $ 515 | $ 519 | $ 523 | $ 527 | $ 531 | $ 535 | $ 539 | $ 543 | $ 547 | $ 551 | $ 555 | $ 559 | $ 563 | $ 568 |
| Meals & Entertainment | 3% | $ 100 | $ 101 | $ 102 | $ 102 | $ 103 | $ 104 | $ 105 | $ 105 | $ 106 | $ 107 | $ 108 | $ 109 | $ 109 | $ 110 | $ 111 | $ 112 | $ 113 | $ 114 |
| Rent &Utilities | 3% | $ 2,000 | $ 2,015 | $ 2,030 | $ 2,045 | $ 2,061 | $ 2,076 | $ 2,092 | $ 2,107 | $ 2,123 | $ 2,139 | $ 2,155 | $ 2,171 | $ 2,188 | $ 2,204 | $ 2,221 | $ 2,237 | $ 2,254 | $ 2,271 |
| Misc. Expense | 3% | $ 1,000 | $ 1,008 | $ 1,015 | $ 1,023 | $ 1,030 | $ 1,038 | $ 1,046 | $ 1,054 | $ 1,062 | $ 1,070 | $ 1,078 | $ 1,086 | $ 1,094 | $ 1,102 | $ 1,110 | $ 1,119 | $ 1,127 | $ 1,135 |
| Management Fee | 3% | $ 1,000 | $ 1,008 | $ 1,015 | $ 1,023 | $ 1,030 | $ 1,038 | $ 1,046 | $ 1,054 | $ 1,062 | $ 1,070 | $ 1,078 | $ 1,086 | $ 1,094 | $ 1,102 | $ 1,110 | $ 1,119 | $ 1,127 | $ 1,135 |

| Quarter 19 | Quarter 20 | Quarter 21 | Quarter 22 | Quarter 23 | Quarter 24 | Quarter 25 | Quarter 26 | Quarter 27 | Quarter 28 | Quarter 29 | Quarter 30 | Quarter 31 | Quarter 32 | Quarter 33 | Quarter 34 | Quarter 35 | Quarter 36 | Quarter 37 | Quarter 38 | Quarter 39 | Quarter 40 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $ 1,144 | $ 1,153 | $ 1,161 | $ 1,170 | $ 1,179 | $ 1,188 | $ 1,196 | $ 1,205 | $ 1,214 | $ 1,224 | $ 1,233 | $ 1,242 | $ 1,251 | $ 1,261 | $ 1,270 | $ 1,280 | $ 1,289 | $ 1,299 | $ 1,309 | $ 1,318 | $ 1,328 | $ 1,338 |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ 1,144 | $ 1,153 | $ 1,161 | $ 1,170 | $ 1,179 | $ 1,188 | $ 1,196 | $ 1,205 | $ 1,214 | $ 1,224 | $ 1,233 | $ 1,242 | $ 1,251 | $ 1,261 | $ 1,270 | $ 1,280 | $ 1,289 | $ 1,299 | $ 1,309 | $ 1,318 | $ 1,328 | $ 1,338 |
| $ 572 | $ 576 | $ 581 | $ 585 | $ 589 | $ 594 | $ 598 | $ 603 | $ 607 | $ 612 | $ 616 | $ 621 | $ 626 | $ 630 | $ 635 | $ 640 | $ 645 | $ 649 | $ 654 | $ 659 | $ 664 | $ 669 |
| $ 114 | $ 115 | $ 116 | $ 117 | $ 118 | $ 119 | $ 120 | $ 121 | $ 121 | $ 122 | $ 123 | $ 124 | $ 125 | $ 126 | $ 127 | $ 128 | $ 129 | $ 130 | $ 131 | $ 132 | $ 133 | $ 134 |
| $ 572 | $ 576 | $ 581 | $ 585 | $ 589 | $ 594 | $ 598 | $ 603 | $ 607 | $ 612 | $ 616 | $ 621 | $ 626 | $ 630 | $ 635 | $ 640 | $ 645 | $ 649 | $ 654 | $ 659 | $ 664 | $ 669 |
| $ 1,144 | $ 1,153 | $ 1,161 | $ 1,170 | $ 1,179 | $ 1,188 | $ 1,196 | $ 1,205 | $ 1,214 | $ 1,224 | $ 1,233 | $ 1,242 | $ 1,251 | $ 1,261 | $ 1,270 | $ 1,280 | $ 1,289 | $ 1,299 | $ 1,309 | $ 1,318 | $ 1,328 | $ 1,338 |
| $ 143 | $ 144 | $ 145 | $ 146 | $ 147 | $ 148 | $ 150 | $ 151 | $ 152 | $ 153 | $ 154 | $ 155 | $ 156 | $ 158 | $ 159 | $ 160 | $ 161 | $ 162 | $ 164 | $ 165 | $ 166 | $ 167 |
| $ 286 | $ 288 | $ 290 | $ 292 | $ 295 | $ 297 | $ 299 | $ 301 | $ 304 | $ 306 | $ 308 | $ 310 | $ 313 | $ 315 | $ 318 | $ 320 | $ 322 | $ 325 | $ 327 | $ 330 | $ 332 | $ 335 |
| $ 11,422 | $ 11,508 | $ 11,594 | $ 11,681 | $ 11,768 | $ 11,857 | $ 11,946 | $ 12,035 | $ 12,125 | $ 12,216 | $ 12,308 | $ 12,400 | $ 12,493 | $ 12,587 | $ 12,681 | $ 12,777 | $ 12,872 | $ 12,969 | $ 13,066 | $ 13,164 | $ 13,263 | $ 13,362 |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ 572 | $ 576 | $ 581 | $ 585 | $ 589 | $ 594 | $ 598 | $ 603 | $ 607 | $ 612 | $ 616 | $ 621 | $ 626 | $ 630 | $ 635 | $ 640 | $ 645 | $ 649 | $ 654 | $ 659 | $ 664 | $ 669 |
| $ 114 | $ 115 | $ 116 | $ 117 | $ 118 | $ 119 | $ 120 | $ 121 | $ 121 | $ 122 | $ 123 | $ 124 | $ 125 | $ 126 | $ 127 | $ 128 | $ 129 | $ 130 | $ 131 | $ 132 | $ 133 | $ 134 |
| $ 2,288 | $ 2,305 | $ 2,322 | $ 2,340 | $ 2,357 | $ 2,375 | $ 2,393 | $ 2,411 | $ 2,429 | $ 2,447 | $ 2,465 | $ 2,484 | $ 2,503 | $ 2,521 | $ 2,540 | $ 2,559 | $ 2,578 | $ 2,598 | $ 2,617 | $ 2,637 | $ 2,657 | $ 2,677 |
| $ 1,144 | $ 1,153 | $ 1,161 | $ 1,170 | $ 1,179 | $ 1,188 | $ 1,196 | $ 1,205 | $ 1,214 | $ 1,224 | $ 1,233 | $ 1,242 | $ 1,251 | $ 1,261 | $ 1,270 | $ 1,280 | $ 1,289 | $ 1,299 | $ 1,309 | $ 1,318 | $ 1,328 | $ 1,338 |
| $ 1,144 | $ 1,153 | $ 1,161 | $ 1,170 | $ 1,179 | $ 1,188 | $ 1,196 | $ 1,205 | $ 1,214 | $ 1,224 | $ 1,233 | $ 1,242 | $ 1,251 | $ 1,261 | $ 1,270 | $ 1,280 | $ 1,289 | $ 1,299 | $ 1,309 | $ 1,318 | $ 1,328 | $ 1,338 |

DEBT

| | | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Quarter 5 | Quarter 6 | Quarter 7 | Quarter 8 | Quarter 9 | Quarter 10 | Quarter 11 | Quarter 12 | Quarter 13 | Quarter 14 | Quarter 15 | Quarter 16 | Quarter 17 | Quarter 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Loan Draw | | $ 6,477,895 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Prinicipal Payment | | | $ 54,385 | $ 53,928 | $ 53,475 | $ 53,026 | $ 52,581 | $ 52,140 | $ 51,702 | $ 51,268 | $ 50,838 | $ 50,411 | $ 49,988 | $ 49,568 | $ 49,152 | $ 48,739 | $ 48,330 | $ 47,924 | $ 47,522 |
| Interest Rate | 4.0% | | | | | | | | | | | | | | | | | | |
| Loan Term | 20 | | | | | | | | | | | | | | | | | | |
| Loan Balance | | $ 6,477,895 | $ 6,423,510 | $ 6,369,582 | $ 6,316,106 | $ 6,263,080 | $ 6,210,499 | $ 6,158,359 | $ 6,106,657 | $ 6,055,389 | $ 6,004,551 | $ 5,954,140 | $ 5,904,153 | $ 5,854,585 | $ 5,805,433 | $ 5,756,694 | $ 5,708,364 | $ 5,660,439 | $ 5,612,918 |
| Loan Payment Total | | | $ (119,163.71) | $ (118,163.28) | $ (117,171.24) | $(116,187.54) | $(115,212.10) | $(114,244.84) | $(113,285.70) | $(112,334.62) | $(111,391.52) | $(110,456.34) | $(109,529.01) | $(108,609.47) | $(107,697.65) | $(106,793.48) | $(105,896.90) | $(105,007.85) | $(104,126.26) |
| Interest | | | $ 64,778.95 | $ 64,235.10 | $ 63,695.82 | $ 63,161.06 | $ 62,630.80 | $ 62,104.99 | $ 61,583.59 | $ 61,066.57 | $ 60,553.89 | $ 60,045.51 | $ 59,541.40 | $ 59,041.53 | $ 58,545.85 | $ 58,054.33 | $ 57,566.94 | $ 57,083.64 | $ 56,604.39 |
| Prinidpal | | | $ 54,384.76 | $ 53,928.18 | $ 53,475.43 | $ 53,026.48 | $ 52,581.30 | $ 52,139.85 | $ 51,702.12 | $ 51,268.05 | $ 50,837.64 | $ 50,410.83 | $ 49,987.61 | $ 49,567.94 | $ 49,151.80 | $ 48,739.15 | $ 48,329.96 | $ 47,924.21 | $ 47,521.87 |

| Quarter 19 | Quarter 20 | Quarter 21 | Quarter 22 | Quarter 23 | Quarter 24 | Quarter 25 | Quarter 26 | Quarter 27 | Quarter 28 | Quarter 29 | Quarter 30 | Quarter 31 | Quarter 32 | Quarter 33 | Quarter 34 | Quarter 35 | Quarter 36 | Quarter 37 | Quarter 38 | Quarter 39 | Quarter 40 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ 47,123 | $ 46,727 | $ 46,335 | $ 45,946 | $ 45,560 | $ 45,178 | $ 44,798 | $ 44,422 | $ 44,049 | $ 43,680 | $ 43,313 | $ 42,949 | $ 42,589 | $ 42,231 | $ 41,877 | $ 41,525 | $ 41,176 | $ 40,831 | $ 40,488 | $ 40,148 | $ 39,811 | $ 39,477 |
| $ 5,565,795 | $ 5,519,067 | $ 5,472,732 | $ 5,426,786 | $ 5,381,226 | $ 5,336,048 | $ 5,291,250 | $ 5,246,828 | $ 5,202,778 | $ 5,159,099 | $ 5,115,786 | $ 5,072,836 | $ 5,030,248 | $ 4,988,017 | $ 4,946,140 | $ 4,904,615 | $ 4,863,439 | $ 4,822,608 | $ 4,782,120 | $ 4,741,972 | $ 4,702,161 | $ 4,662,684 |
| $(103,252.08) | $(102,385.23) | $(101,525.66) | $(100,673.31) | $ (99,828.11) | $ (98,990.01) | $ (98,158.95) | $ (97,334.86) | $ (96,517.69) | $ (95,707.38) | $ (94,903.88) | $ (94,107.12) | $ (93,317.05) | $ (92,533.61) | $ (91,756.75) | $ (90,986.41) | $ (90,222.54) | $ (89,465.08) | $ (88,713.98) | $ (87,969.19) | $ (87,230.65) | $ (86,498.31) |
| $ 56,129.18 | $ 55,657.95 | $ 55,190.67 | $ 54,727.32 | $ 54,267.86 | $ 53,812.26 | $ 53,360.48 | $ 52,912.50 | $ 52,468.28 | $ 52,027.78 | $ 51,590.99 | $ 51,157.86 | $ 50,728.36 | $ 50,302.48 | $ 49,880.17 | $ 49,461.40 | $ 49,046.15 | $ 48,634.39 | $ 48,226.08 | $ 47,821.20 | $ 47,419.72 | $ 47,021.61 |
| $ 47,122.90 | $ 46,727.28 | $ 46,334.99 | $ 45,945.98 | $ 45,560.25 | $ 45,177.75 | $ 44,798.46 | $ 44,422.36 | $ 44,049.41 | $ 43,679.60 | $ 43,312.89 | $ 42,949.26 | $ 42,588.68 | $ 42,231.13 | $ 41,876.58 | $ 41,525.01 | $ 41,176.39 | $ 40,830.70 | $ 40,487.90 | $ 40,147.99 | $ 39,810.93 | $ 39,476.70 |

| PENETRATION | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Quarter 5 | Quarter 6 | Quarter 7 | Quarter 8 | Quarter 9 | Quarter 10 | Quarter 11 | Quarter 12 | Quarter 13 | Quarter 14 | Quarter 15 | Quarter 16 | Quarter 17 | Quarter 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cummulative miles constructed | 5 | 23 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 |
| **Customers Passed** | | | | | | | | | | | | | | | | | | |
| Homes passed - constructed | - | 479 | 958 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 |
| Businesses passed - constructed | - | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Anchors passed - constructed | - | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| **Penetration Rate** | | | | | | | | | | | | | | | | | | |
| Customer penetration | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% |
| Business penetration | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Anchor penetration | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| **Customers Connected** | | | | | | | | | | | | | | | | | | |
| Residential Customers | - | 335 | 671 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 |
| Businesses | - | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Anchors | - | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Customer monthly churn | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% |
| Gross connects | - | 350 | 351 | 701 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 |
| ***Product Penetration Rate*** | | | | | | | | | | | | | | | | | | |
| Video | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% |
| HSD | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% |
| In-house HSD | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| VOIP | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% |
| ***Product Units*** | | | | | | | | | | | | | | | | | | |
| Video | - | 101 | 201 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 |
| HSD | - | 235 | 469 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 |
| In-house HSD | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| VOIP | - | 101 | 201 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 |
| Institution HSD | - | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |

| Quarter 19 | Quarter 20 | Quarter 21 | Quarter 22 | Quarter 23 | Quarter 24 | Quarter 25 | Quarter 26 | Quarter 27 | Quarter 28 | Quarter 29 | Quarter 30 | Quarter 31 | Quarter 32 | Quarter 33 | Quarter 34 | Quarter 35 | Quarter 36 | Quarter 37 | Quarter 38 | Quarter 39 | Quarter 40 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 |
| 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 | 1,916 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% |
| 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 | 1,341 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% |
| 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 | 41 |
| 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% |
| 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% |
| 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% |
| 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 |
| 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 | 939 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 | 402 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |

## COST PER FDH

City of Peculiar (Cost by FDH)

| Outside Plant Cost | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FDH | Fiber Cost ($ / foot) | Main Line | Subscriber | Total OSP | Miles | Total Potential Drops | Subscription Rate | Subscriptions | Fiber Cost Per Subscriber | Days | | | | Cost per subscription |
| 1 | $15.00 | $307,296.00 | $161,628.66 | $468,924.66 | 3.88 | 268 | 70% | 188 | $2,500 | 12 | | | | $2,500 |
| 2 | $15.00 | $287,496.00 | $242,442.98 | $529,938.98 | 3.63 | 402 | 70% | 281 | $1,883 | 12 | | | | $1,883 |
| 3 | $15.00 | $342,144.00 | $118,206.03 | $460,350.03 | 4.32 | 196 | 70% | 137 | $3,355 | 14 | | | | $3,355 |
| 4 | $15.00 | $493,416.00 | $126,649.32 | $620,065.32 | 6.23 | 210 | 70% | 147 | $4,218 | 20 | | | | $4,218 |
| 5 | $15.00 | $145,728.00 | $13,268.02 | $158,996.02 | 1.84 | 22 | 70% | 15 | $10,324 | 6 | | | | $10,324 |
| 6 | $15.00 | $269,280.00 | $34,979.34 | $304,259.34 | 3.40 | 58 | 70% | 41 | $7,494 | 11 | | | | $7,494 |
| 7 | $15.00 | $355,608.00 | $166,453.39 | $522,061.39 | 4.49 | 276 | 70% | 193 | $2,702 | 14 | | | | $2,702 |
| 8 | $15.00 | $554,400.00 | $112,175.11 | $666,575.11 | 7.00 | 186 | 70% | 130 | $5,120 | 22 | | | | $5,120 |
| 9 | $15.00 | $223,344.00 | $91,669.98 | $315,013.98 | 2.82 | 152 | 70% | 106 | $2,961 | 9 | | | | $2,961 |
| 10 | $15.00 | $242,352.00 | $47,041.18 | $289,393.18 | 3.06 | 78 | 70% | 55 | $5,300 | 10 | | | | $5,300 |
| C.O. | $15.00 | $152,856.00 | $41,010.26 | $193,866.26 | 1.93 | 68 | 70% | 48 | $4,073 | 6 | | | | $4,073 |
| Main Line | | $3,373,920.00 | $1,155,524.27 | $4,529,444.27 | 42.60 | 1916 | 70% | 1341 | $3,377 | 136 | | | | |
| Ring | | $195,911.13 | | | 4.37 | | | | | 14 | | | | |
| Total Main Line & Ring | | $3,569,831.13 | | | | | | | | | | | | |
| Total Cost (Main + Drop) | | $4,725,355.40 | | | | | | | | 150 | | | | |
| Sub. Cost (Drop + Cutover) | | | $861.56 | | 46.97 | | | | | | | | | |

| Engineering Costs | | | | | | | | | | | Equipment Costs | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FDH | | Engineering Mainline | Engineering Subscriber | Engineering by FDH | | | | Subscriptions | | | Equipment Initial Cost | Equipment Incremental Cost (Per Sub) | Equipment Total Incremental Cost | Equipment Total Cost |
| 1 | | $36,875.52 | $28,140.00 | $95,384.27 | | | | 188 | | | $0.00 | $654.92 | $122,862.99 | $122,862.99 |
| 2 | | $34,499.52 | $42,210.00 | $106,882.55 | | | | 281 | | | $0.00 | $654.92 | $184,294.49 | $184,294.49 |
| 3 | | $41,057.28 | $20,580.00 | $90,996.29 | | | | 137 | | | $0.00 | $654.92 | $89,855.02 | $89,855.02 |
| 4 | | $59,209.92 | $22,050.00 | $122,042.28 | | | | 147 | | | $0.00 | $654.92 | $96,273.24 | $96,273.24 |
| 5 | | $17,487.36 | $2,310.00 | $31,055.86 | | | | 15 | | | $0.00 | $654.92 | $10,085.77 | $10,085.77 |
| 6 | | $32,313.60 | $6,090.00 | $59,555.97 | | | | 41 | | | $0.00 | $654.92 | $26,589.75 | $26,589.75 |
| 7 | | $42,672.96 | $28,980.00 | $105,586.29 | | | | 193 | | | $0.00 | $654.92 | $126,530.54 | $126,530.54 |
| 8 | | $66,528.00 | $19,530.00 | $127,670.99 | | | | 130 | | | $0.00 | $654.92 | $85,270.58 | $85,270.58 |
| 9 | | $26,801.28 | $15,960.00 | $59,504.93 | | | | 106 | | | $0.00 | $654.92 | $69,683.49 | $69,683.49 |
| 10 | | $29,082.24 | $8,190.00 | $57,151.46 | | | | 55 | | | $0.00 | $654.92 | $35,758.63 | $35,758.63 |
| C.O. | | $18,342.72 | $7,140.00 | $38,543.82 | | | | 48 | | | $54,600.93 | $654.92 | $31,174.19 | $85,775.12 |
| Main Line | | $404,870.40 | $201,180.00 | | | | | | | | | | | |
| Protection Ring | | $23,509.34 | | | | | | | | | | | | |
| Total Cost | | $428,379.74 | $201,180.00 | $629,559.74 | | | | | | | $54,600.93 | | $878,378.70 | $932,979.63 |
| | | | | | | | | | | | | | | |
| TOTAL CAPITAL COST | | $6,287,894.77 | | | | | | | | | | | | |

# Proforma Phased Approach
## City Of Peculiar, Missouri

| Revenue | | |
|---|---|---|
| Video | $ | 50.00 |
| Data | $ | 65.00 |
| Voice | $ | 20.00 |
| Business HSD | $ | 200.00 |
| Installation fees (per connect) | $ | 50.00 |
| Wholesale | | |

| Costs of Goods Sold | | |
|---|---|---|
| Video Program Cost | $ | 36.00 |
| Internet Connectivity | | |
| Telephone | $ | 15.00 |
| Pole Rental | $ | - |

| Expenses | Annual Inflation Factor | Test Year Annual Cost | |
|---|---|---|---|
| Salaries & Wages | See Salaries Tab | | |
| Employee Insurance Group, Health Life | See Salaries Tab | | |
| Taxes Payroll | See Salaries Tab | | |
| Paryroll Service Expense | See Salaries Tab | | |
| Consulting Fees | 2% | $ | 15,000 |
| Service Call Maintenance | From Pulse Model | | |
| Equipment | 2% | $ | 20,000 |
| Legal & Accounting Fees | 2% | $ | 5,000 |
| Travel | 2% | $ | 2,000 |
| Training & Education | 2% | $ | 2,000 |
| Advertising | 2% | $ | 7,500 |
| Dues & Subscriptions | 2% | $ | 500 |
| Fees & Licenses | 2% | $ | 1,000 |
| Postage & Shipping | 2% | $ | 5,000 |
| Telephone & Communication | 2% | $ | 1,200 |
| Computer Expense | 2% | $ | 2,500 |
| Meals & Entertainment | 2% | $ | 500 |
| Rents & Utilities | 2% | $ | 10,000 |
| Misc. Expense | 2% | $ | 25,000 |
| Management Fee | 2% | $ | 7,500 |

| Capital Expenditures | | |
|---|---|---|
| Installation (per customer connect) | $ | - |
| Video CPE | $ | - |
| Data CPE | $ | - |
| Telephone CPE | $ | - |
| | | |
| | | |
| Non-RUS Debt Amount | $ | 4,408,806.91 |
| Non RUS Interest Rate (APR) | | 4% |
| Non Rus Loan Term (Years) | | 20 |
| | | |
| | | |
| RUS Loan Rate (APR) | | 4.0% |
| RUS Loan Term (Years) | | 20 |

# Proforma

## City Of Peculiar, Missouri

| Project Costs | Budget Original |
|---|---|
| NETWORK & ACCESS EQUIPMENT | $ 579,061 |
| OUTSIDE PLANT | $ 3,306,132 |
| SUBSCRIBER EQUIPMENT | $ - |
| BILLING SUPPORT AND OPERATIONS SUPPORT SYSTEMS | $ 25,000 |
| OPERATING EQUIPMENT (vehicles, office equipment, etc.) | $ 15,000 |
| PROFESSIONAL SERVICES | $ 333,614 |
| START UP COSTS | $ 50,000 |
| OTHER | $ 100,000 |
| Total | $ 4,408,807 |
| | |
| Total For Project | $ 4,408,806.91 |

## Broadband Income Statement

| | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Quarter 5 | Quarter 6 | Quarter 7 | Quarter 8 | Quarter 9 | Quarter 10 | Quarter 11 | Quarter 12 | Quarter 13 | Quarter 14 | Quarter 15 | Quarter 16 | Quarter 17 | Quarter 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Revenues** | | | | | | | | | | | | | | | | | | |
| Video | $ - | $ 6,190 | $ 18,569 | $ 37,139 | $ 51,004 | $ 51,004 | $ 51,004 | $ 51,004 | $ 52,534 | $ 52,534 | $ 52,534 | $ 52,534 | $ 54,110 | $ 54,110 | $ 54,110 | $ 54,110 | $ 55,733 | $ 55,733 |
| Data | $ - | $ 18,776 | $ 56,327 | $ 112,653 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 |
| VOIP | $ - | $ 2,550 | $ 7,880 | $ 16,233 | $ 22,293 | $ 22,293 | $ 22,293 | $ 22,293 | $ 22,962 | $ 22,962 | $ 22,962 | $ 22,962 | $ 23,651 | $ 23,651 | $ 23,651 | $ 23,651 | $ 24,360 | $ 24,360 |
| Business HSD | $ - | $ 3,000 | $ 6,000 | $ 6,000 | $ 6,180 | $ 6,180 | $ 6,180 | $ 6,180 | $ 6,365 | $ 6,365 | $ 6,365 | $ 6,365 | $ 6,556 | $ 6,556 | $ 6,556 | $ 6,556 | $ 6,753 | $ 6,753 |
| Installation fees (per connect) | $ - | $ 14,469 | $ 14,389 | $ 28,763 | $ 1,716 | $ 1,716 | $ 1,716 | $ 1,716 | $ 1,767 | $ 1,767 | $ 1,767 | $ 1,767 | $ 1,820 | $ 1,820 | $ 1,820 | $ 1,820 | $ 1,875 | $ 1,875 |
| Wholesale | | | | | | | | | | | | | | | | | | |
| Total | $ - | $ 44,984 | $ 103,165 | $ 200,788 | $ 231,397 | $ 231,397 | $ 231,397 | $ 231,397 | $ 233,833 | $ 233,833 | $ 233,833 | $ 233,833 | $ 236,341 | $ 236,341 | $ 236,341 | $ 236,341 | $ 238,926 | $ 238,926 |
| **Costs of Goods Sold** | | | | | | | | | | | | | | | | | | |
| Video Program Cost | $ - | $ 4,457 | $ 13,370 | $ 26,740 | $ 36,723 | $ 36,723 | $ 36,723 | $ 36,723 | $ 37,824 | $ 37,824 | $ 37,824 | $ 37,824 | $ 38,959 | $ 38,959 | $ 38,959 | $ 38,959 | $ 40,128 | $ 40,128 |
| Internet Connectivity | $ - | $ 7,500 | $ 7,500 | $ 9,499 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 |
| Telephone | $ - | $ 1,857 | $ 5,571 | $ 11,142 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 |
| Pole Rental | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Total | $ - | $ 13,814 | $ 26,441 | $ 47,381 | $ 63,244 | $ 63,244 | $ 63,244 | $ 63,244 | $ 64,345 | $ 64,345 | $ 64,345 | $ 64,345 | $ 65,480 | $ 65,480 | $ 65,480 | $ 65,480 | $ 66,649 | $ 66,649 |
| Gross Profit | $ - | $ 31,171 | $ 76,724 | $ 153,407 | $ 168,153 | $ 168,153 | $ 168,153 | $ 168,153 | $ 169,487 | $ 169,487 | $ 169,487 | $ 169,487 | $ 170,861 | $ 170,861 | $ 170,861 | $ 170,861 | $ 172,277 | $ 172,277 |
| **Operating Expenses** | | | | | | | | | | | | | | | | | | |
| Salaries & Wages | $ - | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 |
| Employee Insurance Group, Health Life | $ - | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 |
| Taxes Payroll | $ - | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 |
| Paryroll Service Expense | $ - | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 |
| Consulting Fees | $ - | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| Repairs & Maintenance | $ - | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 |
| Equipment | $ - | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| Legal & Accounting Fees | $ - | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 |
| Travel | $ - | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 |
| Training & Education | $ - | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 |
| Advertising | $ - | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| Dues & Subscriptions | $ - | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 |
| Fees & Licenses | $ - | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 |
| Postage & Shipping | $ - | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 |
| Telephone & Communication | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Computer Expense | $ - | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 |
| Meals & Entertainment | $ - | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 |
| Rent & Utilities | $ - | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 |
| Misc. Expense | $ - | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| Management Fee | $ - | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| Total | $ - | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 |
| Operating Profit | $ - | $ (32,375) | $ 13,179 | $ 89,862 | $ 104,608 | $ 104,608 | $ 104,608 | $ 104,608 | $ 105,942 | $ 105,942 | $ 105,942 | $ 105,942 | $ 107,316 | $ 107,316 | $ 107,316 | $ 107,316 | $ 108,732 | $ 108,732 |
| Interest Expense | $ - | $ - | $ - | $ 42,987 | $ 42,626 | $ 42,268 | $ 41,913 | $ 41,561 | $ 41,213 | $ 40,867 | $ 40,523 | $ 40,183 | $ 39,846 | $ 39,511 | $ 39,180 | $ 38,851 | $ 38,525 | $ 38,201 |
| Principal Payment | $ - | $ - | $ - | $ 36,089 | $ 35,786 | $ 35,486 | $ 35,188 | $ 34,893 | $ 34,600 | $ 34,309 | $ 34,021 | $ 33,736 | $ 33,452 | $ 33,172 | $ 32,893 | $ 32,617 | $ 32,343 | $ 32,071 |
| Net Income | $ - | $ (32,375) | $ 13,179 | $ 10,786 | $ 26,195 | $ 26,854 | $ 27,507 | $ 28,154 | $ 30,130 | $ 30,766 | $ 31,397 | $ 32,023 | $ 34,018 | $ 34,633 | $ 35,244 | $ 35,849 | $ 37,864 | $ 38,459 |
| Principal and Interest | $ 81,102 | $ 80,421 | $ 79,746 | $ 79,076 | $ 78,412 | $ 77,754 | $ 77,101 | $ 76,454 | $ 75,812 | $ 75,176 | $ 74,545 | $ 73,919 | $ 73,298 | $ 72,683 | $ 72,073 | $ 71,468 | $ 70,868 | $ 70,273 |
| Coverage | 0.00 | (0.40) | 0.17 | 1.14 | 1.33 | 1.35 | 1.36 | 1.37 | 1.40 | 1.41 | 1.42 | 1.43 | 1.46 | 1.48 | 1.49 | 1.50 | 1.53 | 1.55 |

| Quarter 19 | Quarter 20 | Quarter 21 | Quarter 22 | Quarter 23 | Quarter 24 | Quarter 25 | Quarter 26 | Quarter 27 | Quarter 28 | Quarter 29 | Quarter 30 | Quarter 31 | Quarter 32 | Quarter 33 | Quarter 34 | Quarter 35 | Quarter 36 | Quarter 37 | Quarter 38 | Quarter 39 | Quarter 40 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $ 57,405 | $ 57,405 | $ 59,127 | $ 59,127 | $ 60,901 | $ 60,901 | $ 62,728 | $ 62,728 | $ 64,610 | $ 64,610 | $ 66,548 | $ 66,548 | $ 68,544 | $ 68,544 | $ 70,601 | $ 70,601 | $ 72,719 | $ 72,719 | $ 74,900 | $ 74,900 | $ 77,147 | $ 77,147 |
| $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 | $ 150,205 |
| $ 25,091 | $ 25,091 | $ 25,844 | $ 25,844 | $ 26,619 | $ 26,619 | $ 27,418 | $ 27,418 | $ 28,240 | $ 28,240 | $ 29,088 | $ 29,088 | $ 29,960 | $ 29,960 | $ 30,859 | $ 30,859 | $ 31,785 | $ 31,785 | $ 32,738 | $ 32,738 | $ 33,720 | $ 33,720 |
| $ 6,956 | $ 6,956 | $ 7,164 | $ 7,164 | $ 7,379 | $ 7,379 | $ 7,601 | $ 7,601 | $ 7,829 | $ 7,829 | $ 8,063 | $ 8,063 | $ 8,305 | $ 8,305 | $ 8,555 | $ 8,555 | $ 8,811 | $ 8,811 | $ 9,076 | $ 9,076 | $ 9,348 | $ 9,348 |
| $ 1,931 | $ 1,931 | $ 1,989 | $ 1,989 | $ 2,048 | $ 2,048 | $ 2,110 | $ 2,110 | $ 2,173 | $ 2,173 | $ 2,238 | $ 2,238 | $ 2,306 | $ 2,306 | $ 2,375 | $ 2,375 | $ 2,446 | $ 2,446 | $ 2,519 | $ 2,519 | $ 2,595 | $ 2,595 |
| **$ 241,587** | **$ 241,587** | **$ 244,329** | **$ 244,329** | **$ 247,152** | **$ 247,152** | **$ 250,061** | **$ 250,061** | **$ 253,057** | **$ 253,057** | **$ 256,142** | **$ 256,142** | **$ 259,320** | **$ 259,320** | **$ 262,594** | **$ 262,594** | **$ 265,965** | **$ 265,965** | **$ 269,438** | **$ 269,438** | **$ 273,015** | **$ 273,015** |
| $ 41,332 | $ 41,332 | $ 42,571 | $ 42,571 | $ 43,849 | $ 43,849 | $ 45,164 | $ 45,164 | $ 46,519 | $ 46,519 | $ 47,915 | $ 47,915 | $ 49,352 | $ 49,352 | $ 50,833 | $ 50,833 | $ 52,358 | $ 52,358 | $ 53,928 | $ 53,928 | $ 55,546 | $ 55,546 |
| $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 | $ 11,666 |
| $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 | $ 14,855 |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| **$ 67,853** | **$ 67,853** | **$ 69,093** | **$ 69,093** | **$ 70,370** | **$ 70,370** | **$ 71,685** | **$ 71,685** | **$ 73,040** | **$ 73,040** | **$ 74,436** | **$ 74,436** | **$ 75,873** | **$ 75,873** | **$ 77,354** | **$ 77,354** | **$ 78,879** | **$ 78,879** | **$ 80,449** | **$ 80,449** | **$ 82,067** | **$ 82,067** |
| **$ 173,735** | **$ 173,735** | **$ 175,236** | **$ 175,236** | **$ 176,783** | **$ 176,783** | **$ 178,376** | **$ 178,376** | **$ 180,016** | **$ 180,016** | **$ 181,706** | **$ 181,706** | **$ 183,447** | **$ 183,447** | **$ 185,240** | **$ 185,240** | **$ 187,087** | **$ 187,087** | **$ 188,989** | **$ 188,989** | **$ 190,948** | **$ 190,948** |
| $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 | $ 45,547 |
| $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 | $ 2,277 |
| $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 | $ 3,188 |
| $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 | $ 455 |
| $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 | $ 2,663 |
| $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 |
| $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 |
| $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 |
| $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 | $ 127 |
| $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 | $ 254 |
| $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 | $ 203 |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 | $ 508 |
| $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 | $ 102 |
| $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 | $ 2,030 |
| $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 | $ 1,015 |
| $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 | $ 63,545 |
| **$ 110,189** | **$ 110,189** | **$ 111,691** | **$ 111,691** | **$ 113,237** | **$ 113,237** | **$ 114,830** | **$ 114,830** | **$ 116,471** | **$ 116,471** | **$ 118,161** | **$ 118,161** | **$ 119,902** | **$ 119,902** | **$ 121,695** | **$ 121,695** | **$ 123,541** | **$ 123,541** | **$ 125,444** | **$ 125,444** | **$ 127,403** | **$ 127,403** |
| $ 37,880 | $ 37,562 | $ 37,247 | $ 36,934 | $ 36,624 | $ 36,317 | $ 36,012 | $ 35,710 | $ 35,410 | $ 35,112 | $ 34,818 | $ 34,525 | $ 34,235 | $ 33,948 | $ 33,663 | $ 33,380 | $ 33,100 | $ 32,822 | $ 32,547 | $ 32,274 | $ 32,003 | $ - |
| $ 31,802 | $ 31,535 | $ 31,270 | $ 31,008 | $ 30,748 | $ 30,489 | $ 30,234 | $ 29,980 | $ 29,728 | $ 29,478 | $ 29,231 | $ 28,986 | $ 28,742 | $ 28,501 | $ 28,262 | $ 28,024 | $ 27,789 | $ 27,556 | $ 27,324 | $ 27,095 | $ 26,868 | $ - |
| $ 40,507 | $ 41,092 | $ 43,173 | $ 43,749 | $ 45,866 | $ 46,431 | $ 48,585 | $ 49,141 | $ 51,333 | $ 51,880 | $ 54,113 | $ 54,650 | $ 56,924 | $ 57,453 | $ 59,770 | $ 60,290 | $ 62,652 | $ 63,163 | $ 65,572 | $ 66,075 | $ 68,533 | $ 127,403 |
| $ 69,683 | $ 69,098 | $ 68,518 | $ 67,942 | $ 67,372 | $ 66,806 | $ 66,245 | $ 65,689 | $ 65,138 | $ 64,591 | $ 64,049 | $ 63,511 | $ 62,978 | $ 62,449 | $ 61,925 | $ 61,405 | $ 60,889 | $ 60,378 | $ 59,871 | $ 59,369 | $ 58,870 | $ - |
| 1.58 | 1.59 | 1.63 | 1.64 | 1.68 | 1.70 | 1.73 | 1.75 | 1.79 | 1.80 | 1.84 | 1.86 | 1.90 | 1.92 | 1.97 | 1.98 | 2.03 | 2.05 | 2.10 | 2.11 | 2.16 | |

## Broadband Personnel (Salaries and Benefits)

| Personnel | # of Employees | Starting Salaries Including Benefits Per Employee | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Quarter 5 | Quarter 6 | Quarter 7 | Quarter 8 | Quarter 9 | Quarter 10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Manager | 1 | $ 65,000.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 |
| Assistant Manager | 0 | $ 60,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Secretary/Receptionist | 1 | $ 25,000.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 |
| Network Manager | 1 | $ 45,000.00 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 |
| Maintenance Tech | 1 | $ 40,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 |
| Call Center Operator | 1 | $ 25,000.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 |
| Sales Manager | 0 | $ 60,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Account Executive | 0 | $ 55,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Product Development | 0 | $ 45,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Strategic Planning | 0 | $ 40,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Bookkeeper | 0.25 | $ 55,000.00 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 |
| Information Technology (IT) | 0.25 | $ 50,000.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 |
| Legal | 0 | $ 50,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Billing/Collections | 0 | $ 30,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| | | | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Totals | 5.5 | | $ 48,046.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 |

| Personnel | Quarter 11 | Quarter 12 | Quarter 13 | Quarter 14 | Quarter 15 | Quarter 16 | Quarter 17 | Quarter 18 | Quarter 19 | Quarter 20 |
|---|---|---|---|---|---|---|---|---|---|---|
| Manager | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 | $ 16,250.00 |
| Assistant Manager | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Secretary/Receptionist | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 |
| Network Manager | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 | $ 2,812.50 |
| Maintenance Tech | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 | $ 10,000.00 |
| Call Center Operator | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 | $ 6,250.00 |
| Sales Manager | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Account Executive | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Product Development | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Strategic Planning | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Bookkeeper | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 | $ 859.38 |
| Information Technology (IT) | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 | $ 3,125.00 |
| Legal | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Billing/Collections | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Totals | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 | $ 45,546.88 |

## Operating Expense

| | Inflation Factor | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Quarter 5 | Quarter 6 | Quarter 7 | Quarter 8 | Quarter 9 | Quarter 10 | Quarter 11 | Quarter 12 | Quarter 13 | Quarter 14 | Quarter 15 | Quarter 16 | Quarter 17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Consulting Fees | 3% | $ 1,000 | $ 1,008 | $ 1,015 | $ 1,023 | $ 1,030 | $ 1,038 | $ 1,046 | $ 1,054 | $ 1,062 | $ 1,070 | $ 1,078 | $ 1,086 | $ 1,094 | $ 1,102 | $ 1,110 | $ 1,119 | $ 1,127 |
| Repairs & Maintenance | 3% | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Equipment | 3% | $ 1,000 | $ 1,008 | $ 1,015 | $ 1,023 | $ 1,030 | $ 1,038 | $ 1,046 | $ 1,054 | $ 1,062 | $ 1,070 | $ 1,078 | $ 1,086 | $ 1,094 | $ 1,102 | $ 1,110 | $ 1,119 | $ 1,127 |
| Legal & Accounting Fees | 3% | $ 500 | $ 504 | $ 508 | $ 511 | $ 515 | $ 519 | $ 523 | $ 527 | $ 531 | $ 535 | $ 539 | $ 543 | $ 547 | $ 551 | $ 555 | $ 559 | $ 563 |
| Travel | 3% | $ 100 | $ 101 | $ 102 | $ 102 | $ 103 | $ 104 | $ 105 | $ 105 | $ 106 | $ 107 | $ 108 | $ 109 | $ 109 | $ 110 | $ 111 | $ 112 | $ 113 |
| Training & Education | 3% | $ 500 | $ 504 | $ 508 | $ 511 | $ 515 | $ 519 | $ 523 | $ 527 | $ 531 | $ 535 | $ 539 | $ 543 | $ 547 | $ 551 | $ 555 | $ 559 | $ 563 |
| Advertising | 3% | $ 1,000 | $ 1,008 | $ 1,015 | $ 1,023 | $ 1,030 | $ 1,038 | $ 1,046 | $ 1,054 | $ 1,062 | $ 1,070 | $ 1,078 | $ 1,086 | $ 1,094 | $ 1,102 | $ 1,110 | $ 1,119 | $ 1,127 |
| Dues & Subscriptions | 3% | $ 125 | $ 126 | $ 127 | $ 128 | $ 129 | $ 130 | $ 131 | $ 132 | $ 133 | $ 134 | $ 135 | $ 136 | $ 137 | $ 138 | $ 139 | $ 140 | $ 141 |
| Fees & Licenses | 3% | $ 250 | $ 252 | $ 254 | $ 256 | $ 258 | $ 260 | $ 261 | $ 263 | $ 265 | $ 267 | $ 269 | $ 271 | $ 273 | $ 276 | $ 278 | $ 280 | $ 282 |
| Postage & Shipping | 3% | $ 200 | $ 202 | $ 203 | $ 205 | $ 6,000 | $ 6,045 | $ 6,090 | $ 6,136 | $ 6,182 | $ 10,679 | $ 10,759 | $ 10,840 | $ 10,921 | $ 11,003 | $ 11,086 | $ 11,169 | $ 11,252 |
| Telephone & Communication | 3% | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Computer Expense | 3% | $ 500 | $ 504 | $ 508 | $ 511 | $ 515 | $ 519 | $ 523 | $ 527 | $ 531 | $ 535 | $ 539 | $ 543 | $ 547 | $ 551 | $ 555 | $ 559 | $ 563 |
| Meals & Entertainment | 3% | $ 100 | $ 101 | $ 102 | $ 102 | $ 103 | $ 104 | $ 105 | $ 105 | $ 106 | $ 107 | $ 108 | $ 109 | $ 109 | $ 110 | $ 111 | $ 112 | $ 113 |
| Rent &Utilities | 3% | $ 2,000 | $ 2,015 | $ 2,030 | $ 2,045 | $ 2,061 | $ 2,076 | $ 2,092 | $ 2,107 | $ 2,123 | $ 2,139 | $ 2,155 | $ 2,171 | $ 2,188 | $ 2,204 | $ 2,221 | $ 2,237 | $ 2,254 |
| Misc. Expense | 3% | $ 1,000 | $ 1,008 | $ 1,015 | $ 1,023 | $ 1,030 | $ 1,038 | $ 1,046 | $ 1,054 | $ 1,062 | $ 1,070 | $ 1,078 | $ 1,086 | $ 1,094 | $ 1,102 | $ 1,110 | $ 1,119 | $ 1,127 |
| Management Fee | 3% | $ 1,000 | $ 1,008 | $ 1,015 | $ 1,023 | $ 1,030 | $ 1,038 | $ 1,046 | $ 1,054 | $ 1,062 | $ 1,070 | $ 1,078 | $ 1,086 | $ 1,094 | $ 1,102 | $ 1,110 | $ 1,119 | $ 1,127 |

| Quarter 18 | Quarter 19 | Quarter 20 | Quarter 21 | Quarter 22 | Quarter 23 | Quarter 24 | Quarter 25 | Quarter 26 | Quarter 27 | Quarter 28 | Quarter 29 | Quarter 30 | Quarter 31 | Quarter 32 | Quarter 33 | Quarter 34 | Quarter 35 | Quarter 36 | Quarter 37 | Quarter 38 | Quarter 39 | Quarter 40 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $ 1,135 | $ 1,144 | $ 1,153 | $ 1,161 | $ 1,170 | $ 1,179 | $ 1,188 | $ 1,196 | $ 1,205 | $ 1,214 | $ 1,224 | $ 1,233 | $ 1,242 | $ 1,251 | $ 1,261 | $ 1,270 | $ 1,280 | $ 1,289 | $ 1,299 | $ 1,309 | $ 1,318 | $ 1,328 | $ 1,338 |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ 1,135 | $ 1,144 | $ 1,153 | $ 1,161 | $ 1,170 | $ 1,179 | $ 1,188 | $ 1,196 | $ 1,205 | $ 1,214 | $ 1,224 | $ 1,233 | $ 1,242 | $ 1,251 | $ 1,261 | $ 1,270 | $ 1,280 | $ 1,289 | $ 1,299 | $ 1,309 | $ 1,318 | $ 1,328 | $ 1,338 |
| $ 568 | $ 572 | $ 576 | $ 581 | $ 585 | $ 589 | $ 594 | $ 598 | $ 603 | $ 607 | $ 612 | $ 616 | $ 621 | $ 626 | $ 630 | $ 635 | $ 640 | $ 645 | $ 649 | $ 654 | $ 659 | $ 664 | $ 669 |
| $ 114 | $ 114 | $ 115 | $ 116 | $ 117 | $ 118 | $ 119 | $ 120 | $ 121 | $ 121 | $ 122 | $ 123 | $ 124 | $ 125 | $ 126 | $ 127 | $ 128 | $ 129 | $ 130 | $ 131 | $ 132 | $ 133 | $ 134 |
| $ 568 | $ 572 | $ 576 | $ 581 | $ 585 | $ 589 | $ 594 | $ 598 | $ 603 | $ 607 | $ 612 | $ 616 | $ 621 | $ 626 | $ 630 | $ 635 | $ 640 | $ 645 | $ 649 | $ 654 | $ 659 | $ 664 | $ 669 |
| $ 1,135 | $ 1,144 | $ 1,153 | $ 1,161 | $ 1,170 | $ 1,179 | $ 1,188 | $ 1,196 | $ 1,205 | $ 1,214 | $ 1,224 | $ 1,233 | $ 1,242 | $ 1,251 | $ 1,261 | $ 1,270 | $ 1,280 | $ 1,289 | $ 1,299 | $ 1,309 | $ 1,318 | $ 1,328 | $ 1,338 |
| $ 142 | $ 143 | $ 144 | $ 145 | $ 146 | $ 147 | $ 148 | $ 150 | $ 151 | $ 152 | $ 153 | $ 154 | $ 155 | $ 156 | $ 158 | $ 159 | $ 160 | $ 161 | $ 162 | $ 164 | $ 165 | $ 166 | $ 167 |
| $ 284 | $ 286 | $ 288 | $ 290 | $ 292 | $ 295 | $ 297 | $ 299 | $ 301 | $ 304 | $ 306 | $ 308 | $ 310 | $ 313 | $ 315 | $ 318 | $ 320 | $ 322 | $ 325 | $ 327 | $ 330 | $ 332 | $ 335 |
| $ 11,337 | $ 11,422 | $ 11,508 | $ 11,594 | $ 11,681 | $ 11,768 | $ 11,857 | $ 11,946 | $ 12,035 | $ 12,125 | $ 12,216 | $ 12,308 | $ 12,400 | $ 12,493 | $ 12,587 | $ 12,681 | $ 12,777 | $ 12,872 | $ 12,969 | $ 13,066 | $ 13,164 | $ 13,263 | $ 13,362 |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ 568 | $ 572 | $ 576 | $ 581 | $ 585 | $ 589 | $ 594 | $ 598 | $ 603 | $ 607 | $ 612 | $ 616 | $ 621 | $ 626 | $ 630 | $ 635 | $ 640 | $ 645 | $ 649 | $ 654 | $ 659 | $ 664 | $ 669 |
| $ 114 | $ 114 | $ 115 | $ 116 | $ 117 | $ 118 | $ 119 | $ 120 | $ 121 | $ 121 | $ 122 | $ 123 | $ 124 | $ 125 | $ 126 | $ 127 | $ 128 | $ 129 | $ 130 | $ 131 | $ 132 | $ 133 | $ 134 |
| $ 2,271 | $ 2,288 | $ 2,305 | $ 2,322 | $ 2,340 | $ 2,357 | $ 2,375 | $ 2,393 | $ 2,411 | $ 2,429 | $ 2,447 | $ 2,465 | $ 2,484 | $ 2,503 | $ 2,521 | $ 2,540 | $ 2,559 | $ 2,578 | $ 2,598 | $ 2,617 | $ 2,637 | $ 2,657 | $ 2,677 |
| $ 1,135 | $ 1,144 | $ 1,153 | $ 1,161 | $ 1,170 | $ 1,179 | $ 1,188 | $ 1,196 | $ 1,205 | $ 1,214 | $ 1,224 | $ 1,233 | $ 1,242 | $ 1,251 | $ 1,261 | $ 1,270 | $ 1,280 | $ 1,289 | $ 1,299 | $ 1,309 | $ 1,318 | $ 1,328 | $ 1,338 |
| $ 1,135 | $ 1,144 | $ 1,153 | $ 1,161 | $ 1,170 | $ 1,179 | $ 1,188 | $ 1,196 | $ 1,205 | $ 1,214 | $ 1,224 | $ 1,233 | $ 1,242 | $ 1,251 | $ 1,261 | $ 1,270 | $ 1,280 | $ 1,289 | $ 1,299 | $ 1,309 | $ 1,318 | $ 1,328 | $ 1,338 |

## Debt

| | | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Quarter 5 | Quarter 6 | Quarter 7 | Quarter 8 | Quarter 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| Loan Draw | | $ 4,408,807 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Principal Payment | | | $ 37,014 | $ 36,703 | $ 36,395 | $ 36,089 | $ 35,786 | $ 35,486 | $ 35,188 | $ 34,893 |
| Interest Rate | 4.0% | | | | | | | | | |
| Loan Term | 20 | | | | | | | | | |
| Loan Balance | | $ 4,408,807 | $ 4,371,793 | $ 4,335,090 | $ 4,298,695 | $ 4,262,606 | $ 4,226,819 | $ 4,191,333 | $ 4,156,145 | $ 4,121,252 |
| Loan Payment Total | | | $ (81,101.93) | $ (80,421.05) | $ (79,745.88) | $ (79,076.37) | $ (78,412.49) | $ (77,754.19) | $ (77,101.41) | $ (76,454.11) |
| Interest | | | $ 44,088.07 | $ 43,717.93 | $ 43,350.90 | $ 42,986.95 | $ 42,626.06 | $ 42,268.19 | $ 41,913.33 | $ 41,561.45 |
| Principal | | | $ 37,013.86 | $ 36,703.12 | $ 36,394.98 | $ 36,089.43 | $ 35,786.44 | $ 35,486.00 | $ 35,188.08 | $ 34,892.66 |

| | Quarter 10 | Quarter 11 | Quarter 12 | Quarter 13 | Quarter 14 | Quarter 15 | Quarter 16 | Quarter 17 | Quarter 18 |
|---|---|---|---|---|---|---|---|---|---|
| Loan Draw | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Principal Payment | $ 34,600 | $ 34,309 | $ 34,021 | $ 33,736 | $ 33,452 | $ 33,172 | $ 32,893 | $ 32,617 | $ 32,343 |
| Interest Rate | | | | | | | | | |
| Loan Term | | | | | | | | | |
| Loan Balance | $ 4,086,653 | $ 4,052,343 | $ 4,018,322 | $ 3,984,587 | $ 3,951,134 | $ 3,917,963 | $ 3,885,070 | $ 3,852,453 | $ 3,820,110 |
| Loan Payment Total | $ (75,812.24) | $ (75,175.76) | $ (74,544.63) | $ (73,918.80) | $ (73,298.21) | $ (72,682.84) | $ (72,072.64) | $ (71,467.56) | $ (70,867.56) |
| Interest | $ 41,212.52 | $ 40,866.53 | $ 40,523.43 | $ 40,183.22 | $ 39,845.87 | $ 39,511.34 | $ 39,179.63 | $ 38,850.70 | $ 38,524.53 |
| Principal | $ 34,599.72 | $ 34,309.24 | $ 34,021.20 | $ 33,735.57 | $ 33,452.35 | $ 33,171.50 | $ 32,893.01 | $ 32,616.86 | $ 32,343.03 |

| Quarter 19 | Quarter 20 | Quarter 21 | Quarter 22 | Quarter 23 | Quarter 24 | Quarter 25 | Quarter 26 | Quarter 27 | Quarter 28 | Quarter 29 | Quarter 30 | Quarter 31 | Quarter 32 | Quarter 33 | Quarter 34 | Quarter 35 | Quarter 36 | Quarter 37 | Quarter 38 | Quarter 39 | Quarter 40 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ 32,071 | $ 31,802 | $ 31,535 | $ 31,270 | $ 31,008 | $ 30,748 | $ 30,489 | $ 30,234 | $ 29,980 | $ 29,728 | $ 29,478 | $ 29,231 | $ 28,986 | $ 28,742 | $ 28,501 | $ 28,262 | $ 28,024 | $ 27,789 | $ 27,556 | $ 27,324 | $ 27,095 | $ 26,868 |
| | | | | | | | | | | | | | | | | | | | | | |
| $ 3,788,038 | $ 3,756,236 | $ 3,724,701 | $ 3,693,430 | $ 3,662,422 | $ 3,631,675 | $ 3,601,185 | $ 3,570,952 | $ 3,540,972 | $ 3,511,244 | $ 3,481,766 | $ 3,452,535 | $ 3,423,549 | $ 3,394,807 | $ 3,366,306 | $ 3,338,044 | $ 3,310,020 | $ 3,282,231 | $ 3,254,675 | $ 3,227,351 | $ 3,200,256 | $ 3,173,388 |
| $ (70,272.59) | $ (69,682.62) | $ (69,097.61) | $ (68,517.50) | $ (67,942.27) | $ (67,371.86) | $ (66,806.25) | $ (66,245.38) | $ (65,689.22) | $ (65,137.73) | $ (64,590.87) | $ (64,048.60) | $ (63,510.89) | $ (62,977.68) | $ (62,448.96) | $ (61,924.67) | $ (61,404.79) | $ (60,889.27) | $ (60,378.08) | $ (59,871.18) | $ (59,368.53) | $ (58,870.11) |
| $ 38,201.10 | $ 37,880.38 | $ 37,562.36 | $ 37,247.01 | $ 36,934.30 | $ 36,624.22 | $ 36,316.75 | $ 36,011.85 | $ 35,709.52 | $ 35,409.72 | $ 35,112.44 | $ 34,817.66 | $ 34,525.35 | $ 34,235.49 | $ 33,948.07 | $ 33,663.06 | $ 33,380.44 | $ 33,100.20 | $ 32,822.31 | $ 32,546.75 | $ 32,273.51 | $ 32,002.56 |
| $ 32,071.49 | $ 31,802.24 | $ 31,535.25 | $ 31,270.49 | $ 31,007.96 | $ 30,747.64 | $ 30,489.50 | $ 30,233.53 | $ 29,979.70 | $ 29,728.01 | $ 29,478.43 | $ 29,230.95 | $ 28,985.54 | $ 28,742.19 | $ 28,500.89 | $ 28,261.61 | $ 28,024.34 | $ 27,789.07 | $ 27,555.77 | $ 27,324.42 | $ 27,095.02 | $ 26,867.55 |

## Penetration

| | Quarter 1 | Quarter 2 | Quarter 3 | Quarter 4 | Quarter 5 | Quarter 6 | Quarter 7 | Quarter 8 | Quarter 9 | Quarter 10 | Quarter 11 | Quarter 12 | Quarter 13 | Quarter 14 | Quarter 15 | Quarter 16 | Quarter 17 | Quarter 18 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Cummulative miles constructed | 5 | 23 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 |
| **Customers Passed** | | | | | | | | | | | | | | | | | | |
| Homes passed - constructed | - | 393 | 786 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 |
| Businesses passed - constructed | - | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Anchors passed - constructed | - | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| **Penetration Rate** | | | | | | | | | | | | | | | | | | |
| Customer penetration | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% |
| Business penetration | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| Anchor penetration | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| **Customers Connected** | | | | | | | | | | | | | | | | | | |
| Residential Customers | - | 275 | 550 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 |
| Businesses | - | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Anchors | - | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| Customer monthly churn | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% |
| Gross connects | - | 288 | 288 | 575 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 |
| ***Product Penetration Rate*** | | | | | | | | | | | | | | | | | | |
| Video | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% |
| HSD | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% |
| In-house HSD | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| VOIP | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% |
| ***Product Units*** | | | | | | | | | | | | | | | | | | |
| Video | - | 83 | 165 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 |
| HSD | - | 193 | 385 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 |
| In-house HSD | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| VOIP | - | 83 | 165 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 |
| Institution HSD | - | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| **Internet Connection Costs** | | | | | | | | | | | | | | | | | | |
| *Transport* | 1000 | | | | | | | | | | | | | | | | | |
| *Cost per Mbps* | 15 | | | | | | | | | | | | | | | | | |
| Internet connectivity | $ 7,500.00 | $ 7,500.00 | $ 7,500.00 | $ 9,499.24 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 |
| **Revenue Unit Costs** | | | | | | | | | | | | | | | | | | |
| Video (including equip fees) | $ 50.00 | $ 50.00 | $ 50.00 | $ 50.00 | $ 51.50 | $ 51.50 | $ 51.50 | $ 51.50 | $ 53.05 | $ 53.05 | $ 53.05 | $ 53.05 | $ 54.64 | $ 54.64 | $ 54.64 | $ 54.64 | $ 56.28 | $ 56.28 |
| Data | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 |
| VOIP | $ 20.00 | $ 20.60 | $ 21.22 | $ 21.85 | $ 22.51 | $ 22.51 | $ 22.51 | $ 22.51 | $ 23.19 | $ 23.19 | $ 23.19 | $ 23.19 | $ 23.88 | $ 23.88 | $ 23.88 | $ 23.88 | $ 24.60 | $ 24.60 |
| Business HSD | $ 200.00 | $ 200.00 | $ 200.00 | $ 200.00 | $ 206.00 | $ 206.00 | $ 206.00 | $ 206.00 | $ 212.18 | $ 212.18 | $ 212.18 | $ 212.18 | $ 218.55 | $ 218.55 | $ 218.55 | $ 218.55 | $ 225.10 | $ 225.10 |
| Installation fees (per connect) | $ 50.00 | $ 50.00 | $ 50.00 | $ 50.00 | $ 51.50 | $ 51.50 | $ 51.50 | $ 51.50 | $ 53.05 | $ 53.05 | $ 53.05 | $ 53.05 | $ 54.64 | $ 54.64 | $ 54.64 | $ 54.64 | $ 56.28 | $ 56.28 |
| **Cost of Goods Sold Unit Costs** | | | | | | | | | | | | | | | | | | |
| Programming costs | $ 36.00 | $ 36.00 | $ 36.00 | $ 36.00 | $ 37.08 | $ 37.08 | $ 37.08 | $ 37.08 | $ 38.19 | $ 38.19 | $ 38.19 | $ 38.19 | $ 39.34 | $ 39.34 | $ 39.34 | $ 39.34 | $ 40.52 | $ 40.52 |
| Telephone costs | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 |
| Service call and disco expense (3% service calls) | $ 70.00 | $ 70.00 | $ 70.00 | $ 70.00 | $ 71.40 | $ 71.40 | $ 71.40 | $ 71.40 | $ 72.83 | $ 72.83 | $ 72.83 | $ 72.83 | $ 74.28 | $ 74.28 | $ 74.28 | $ 74.28 | $ 75.77 | $ 75.77 |
| **Customer Connection Expenditures** | | | | | | | | | | | | | | | | | | |
| Installation (per customer connect) | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Video CPE | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Data CPE | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Telephone CPE | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| **Revenue:** | | | | | | | | | | | | | | | | | | |
| Video | $ - | $ 6,189.75 | $ 18,569.25 | $ 37,138.50 | $ 51,003.54 | $ 51,003.54 | $ 51,003.54 | $ 51,003.54 | $ 52,533.65 | $ 52,533.65 | $ 52,533.65 | $ 52,533.65 | $ 54,109.66 | $ 54,109.66 | $ 54,109.66 | $ 54,109.66 | $ 55,732.95 | $ 55,732.95 |
| Data | $ - | $ 18,775.58 | $ 56,326.73 | $ 112,653.45 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 |
| Voice | $ - | $ 2,550.18 | $ 7,880.05 | $ 16,232.90 | $ 22,293.18 | $ 22,293.18 | $ 22,293.18 | $ 22,293.18 | $ 22,961.97 | $ 22,961.97 | $ 22,961.97 | $ 22,961.97 | $ 23,650.83 | $ 23,650.83 | $ 23,650.83 | $ 23,650.83 | $ 24,360.36 | $ 24,360.36 |
| Business | $ - | $ 3,000.00 | $ 6,000.00 | $ 6,000.00 | $ 6,180.00 | $ 6,180.00 | $ 6,180.00 | $ 6,180.00 | $ 6,365.40 | $ 6,365.40 | $ 6,365.40 | $ 6,365.40 | $ 6,556.36 | $ 6,556.36 | $ 6,556.36 | $ 6,556.36 | $ 6,753.05 | $ 6,753.05 |
| Install fees per connect | $ - | $ 14,468.83 | $ 14388.98 | $ 28,762.95 | $ 1,715.57 | $ 1,715.57 | $ 1,715.57 | $ 1,715.57 | $ 1,767.04 | $ 1,767.04 | $ 1,767.04 | $ 1,767.04 | $ 1,820.05 | $ 1,820.05 | $ 1,820.05 | $ 1,820.05 | $ 1,874.65 | $ 1,874.65 |
| **Costs of Goods Sold** | | | | | | | | | | | | | | | | | | |
| Programming costs | $ - | $ 4,456.62 | $ 13,369.86 | $ 26,739.72 | $ 36,722.55 | $ 36,722.55 | $ 36,722.55 | $ 36,722.55 | $ 37,824.23 | $ 37,824.23 | $ 37,824.23 | $ 37,824.23 | $ 38,958.95 | $ 38,958.95 | $ 38,958.95 | $ 38,958.95 | $ 40,127.72 | $ 40,127.72 |
| Telephone costs | $ - | $ 1,856.93 | $ 5,570.78 | $ 11,141.55 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 |
| Internet connectivity | $ 7,500.00 | $ 7,500.00 | $ 7,500.00 | $ 9,499.24 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 |
| Service call expense (3% service calls) | $ - | $ 898.07 | $ 2,662.70 | $ 5,262.39 | $ 7,135.43 | $ 7,135.43 | $ 7,135.43 | $ 7,135.43 | $ 7,278.14 | $ 7,278.14 | $ 7,278.14 | $ 7,278.14 | $ 7,423.70 | $ 7,423.70 | $ 7,423.70 | $ 7,423.70 | $ 7,572.18 | $ 7,572.18 |
| | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| **Ongoing capital expenditures:** | | | | | | | | | | | | | | | | | | |
| Installation | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| CPE | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Total capital expenditures | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| **Capital Expenditure Payout Schedule** | | | | | | | | | | | | | | | | | | |
| NETWORK & ACCESS EQUIPMENT | $ 193,020.29 | $ 193,020.29 | $ 193,020.29 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| OUTSIDE PLANT | $ 1,102,043.92 | $ 1,102,043.92 | $ 1,102,043.92 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| BUILDINGS | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| CUSTOMER PREMISE EQUIPMENT | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| BILLING SUPPORT AND OPERATIONS SUPPORT SYSTEMS | $ 25,000.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| OPERATING EQUIPMENT (vehicles, office equipment, etc.) | | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| PROFESSIONAL SERVICES | $ 213,494.30 | $ 60,060.00 | $ 60,060.00 | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| TESTING | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| Plant replacement and other | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 |

| Quarter 19 | Quarter 20 | Quarter 21 | Quarter 22 | Quarter 23 | Quarter 24 | Quarter 25 | Quarter 26 | Quarter 27 | Quarter 28 | Quarter 29 | Quarter 30 | Quarter 31 | Quarter 32 | Quarter 33 | Quarter 34 | Quarter 35 | Quarter 36 | Quarter 37 | Quarter 38 | Quarter 39 | Quarter 40 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 | 47 |
| 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 | 1,572 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% |
| 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% | 100% |
| 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% | 1.0% |
| 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 | 33 |
| 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% |
| 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% | 70% |
| 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% | 30% |
| 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 |
| 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 | 770 |
| - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 | 330 |
| 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 |
| $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 |
| $ 57.96 | $ 57.96 | $ 59.70 | $ 59.70 | $ 61.49 | $ 61.49 | $ 63.34 | $ 63.34 | $ 65.24 | $ 65.24 | $ 67.20 | $ 67.20 | $ 69.21 | $ 69.21 | $ 71.29 | $ 71.29 | $ 73.43 | $ 73.43 | $ 75.63 | $ 75.63 | $ 77.90 | $ 77.90 |
| $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 | $ 65.00 |
| $ 25.34 | $ 25.34 | $ 26.10 | $ 26.10 | $ 26.88 | $ 26.88 | $ 27.68 | $ 27.68 | $ 28.52 | $ 28.52 | $ 29.37 | $ 29.37 | $ 30.25 | $ 30.25 | $ 31.16 | $ 31.16 | $ 32.09 | $ 32.09 | $ 33.06 | $ 33.06 | $ 34.05 | $ 34.05 |
| $ 231.85 | $ 231.85 | $ 238.81 | $ 238.81 | $ 245.97 | $ 245.97 | $ 253.35 | $ 253.35 | $ 260.95 | $ 260.95 | $ 268.78 | $ 268.78 | $ 276.85 | $ 276.85 | $ 285.15 | $ 285.15 | $ 293.71 | $ 293.71 | $ 302.52 | $ 302.52 | $ 311.59 | $ 311.59 |
| $ 57.96 | $ 57.96 | $ 59.70 | $ 59.70 | $ 61.49 | $ 61.49 | $ 63.34 | $ 63.34 | $ 65.24 | $ 65.24 | $ 67.20 | $ 67.20 | $ 69.21 | $ 69.21 | $ 71.29 | $ 71.29 | $ 73.43 | $ 73.43 | $ 75.63 | $ 75.63 | $ 77.90 | $ 77.90 |
| $ 41.73 | $ 41.73 | $ 42.99 | $ 42.99 | $ 44.28 | $ 44.28 | $ 45.60 | $ 45.60 | $ 46.97 | $ 46.97 | $ 48.38 | $ 48.38 | $ 49.83 | $ 49.83 | $ 51.33 | $ 51.33 | $ 52.87 | $ 52.87 | $ 54.45 | $ 54.45 | $ 56.09 | $ 56.09 |
| $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 | $ 15.00 |
| $ 75.77 | $ 75.77 | $ 77.29 | $ 77.29 | $ 77.29 | $ 77.29 | $ 78.83 | $ 78.83 | $ 78.83 | $ 78.83 | $ 80.41 | $ 80.41 | $ 80.41 | $ 80.41 | $ 82.02 | $ 82.02 | $ 82.02 | $ 82.02 | $ 83.66 | $ 83.66 | $ 83.66 | $ 83.66 |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ 57,404.93 | $ 57,404.93 | $ 59,127.08 | $ 59,127.08 | $ 60,900.89 | $ 60,900.89 | $ 62,727.92 | $ 62,727.92 | $ 64,609.76 | $ 64,609.76 | $ 66,548.05 | $ 66,548.05 | $ 68,544.49 | $ 68,544.49 | $ 70,600.83 | $ 70,600.83 | $ 72,718.85 | $ 72,718.85 | $ 74,900.42 | $ 74,900.42 | $ 77,147.43 | $ 77,147.43 |
| $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 | $ 150,204.60 |
| $ 25,091.17 | $ 25,091.17 | $ 25,843.90 | $ 25,843.90 | $ 26,619.22 | $ 26,619.22 | $ 27,417.80 | $ 27,417.80 | $ 28,240.33 | $ 28,240.33 | $ 29,087.54 | $ 29,087.54 | $ 29,960.17 | $ 29,960.17 | $ 30,858.97 | $ 30,858.97 | $ 31,784.74 | $ 31,784.74 | $ 32,738.28 | $ 32,738.28 | $ 33,720.43 | $ 33,720.43 |
| $ 6,955.64 | $ 6,955.64 | $ 7,164.31 | $ 7,164.31 | $ 7,379.24 | $ 7,379.24 | $ 7,600.62 | $ 7,600.62 | $ 7,828.64 | $ 7,828.64 | $ 8,063.50 | $ 8,063.50 | $ 8,305.40 | $ 8,305.40 | $ 8,554.57 | $ 8,554.57 | $ 8,811.20 | $ 8,811.20 | $ 9,075.54 | $ 9,075.54 | $ 9,347.80 | $ 9,347.80 |
| $ 1,930.89 | $ 1,930.89 | $ 1,988.81 | $ 1,988.81 | $ 2,048.48 | $ 2,048.48 | $ 2,109.93 | $ 2,109.93 | $ 2,173.23 | $ 2,173.23 | $ 2,238.43 | $ 2,238.43 | $ 2,305.58 | $ 2,305.58 | $ 2,374.75 | $ 2,374.75 | $ 2,445.99 | $ 2,445.99 | $ 2,519.37 | $ 2,519.37 | $ 2,594.95 | $ 2,594.95 |
| $ 41,331.55 | $ 41,331.55 | $ 42,571.50 | $ 42,571.50 | $ 43,848.64 | $ 43,848.64 | $ 45,164.10 | $ 45,164.10 | $ 46,519.03 | $ 46,519.03 | $ 47,914.60 | $ 47,914.60 | $ 49,352.03 | $ 49,352.03 | $ 50,832.60 | $ 50,832.60 | $ 52,357.57 | $ 52,357.57 | $ 53,928.30 | $ 53,928.30 | $ 55,546.15 | $ 55,546.15 |
| $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 | $ 14,855.40 |
| $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 | $ 11,665.65 |
| $ 7,572.18 | $ 7,572.18 | $ 7,723.62 | $ 7,723.62 | $ 7,723.62 | $ 7,723.62 | $ 7,878.09 | $ 7,878.09 | $ 7,878.09 | $ 7,878.09 | $ 8,035.65 | $ 8,035.65 | $ 8,035.65 | $ 8,035.65 | $ 8,196.37 | $ 8,196.37 | $ 8,196.37 | $ 8,196.37 | $ 8,360.29 | $ 8,360.29 | $ 8,360.29 | $ 8,360.29 |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - | $ - |
| $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 | $ 48,000.00 |

City of Peculiar (Cost by FDH)

| Outside Plant Cost | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FDH | Fiber Cost ($ / foot) | Main Line | Subscriber | Total OSP | Miles | Total Potential Drops | Subscription Rate | Subscriptions | Fiber Cost Per Subscriber | Days | | | | Cost per subscription |
| 1 | $15.00 | $307,296.00 | $161,628.66 | $468,924.66 | 3.88 | 268 | 70% | 188 | $2,500 | 12 | | | | $2,500 |
| 2 | $15.00 | $287,496.00 | $242,442.98 | $529,938.98 | 3.63 | 402 | 70% | 281 | $1,883 | 12 | | | | $1,883 |
| 3 | $15.00 | $342,144.00 | $118,206.03 | $460,350.03 | 4.32 | 196 | 70% | 137 | $3,355 | 14 | | | | $3,355 |
| 4 | $15.00 | $493,416.00 | $126,649.32 | $620,065.32 | 6.23 | 210 | 70% | 147 | $4,218 | 20 | | | | $4,218 |
| 7 | $15.00 | $355,608.00 | $166,453.39 | $522,061.39 | 4.49 | 276 | 70% | 193 | $2,702 | 14 | | | | $2,702 |
| 9 | $15.00 | $223,344.00 | $91,669.98 | $315,013.98 | 2.82 | 152 | 70% | 106 | $2,961 | 9 | | | | $2,961 |
| C.O. | $15.00 | $152,856.00 | $41,010.26 | $193,866.26 | 1.93 | 68 | 70% | 48 | $4,073 | 6 | | | | $4,073 |
| Main Line | | $2,162,160.00 | $948,060.62 | $3,110,220.62 | 42.60 | 1572 | 70% | 1100 | $2,826 | 87 | | | | |
| Ring | | $195,911.13 | | | 4.37 | | | | | 14 | | | | |
| Total Main Line & Ring | | $2,358,071.13 | | | | | | | | | | | | |
| Total Cost (Main + Drop) | | $3,306,131.75 | | | | | | | | 101 | | | | |
| Sub. Cost (Drop + Cutover) | | | $861.56 | | 46.97 | | | | | | | | | |

| Engineering Costs | | | | | | | | | | | Equipment Costs | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| FDH | | Engineering Mainline | Engineering Subscriber | Engineering by FDH | | | | Subscriptions | | | Equipment Initial Cost | Equipment Incremental Cost (Per Sub) | Equipment Total Incremental Cost | Equipment Total Cost |
| 1 | | $36,875.52 | $28,140.00 | $95,384.27 | | | | 188 | | | $0.00 | $654.92 | $122,862.99 | $122,862.99 |
| 2 | | $34,499.52 | $42,210.00 | $106,882.55 | | | | 281 | | | $0.00 | $654.92 | $184,294.49 | $184,294.49 |
| 3 | | $41,057.28 | $20,580.00 | $90,996.29 | | | | 137 | | | $0.00 | $654.92 | $89,855.02 | $89,855.02 |
| 4 | | $59,209.92 | $22,050.00 | $122,042.28 | | | | 147 | | | $0.00 | $654.92 | $96,273.24 | $96,273.24 |
| C.O. | | $18,342.72 | $7,140.00 | $38,543.82 | | | | 48 | | | $54,600.93 | $654.92 | $31,174.19 | $85,775.12 |
| Main Line | | $189,984.96 | $120,120.00 | | | | | | | | | | | |
| Protection Ring | | $23,509.34 | | | | | | | | | | | | |
| Total Cost | | $213,494.30 | $120,120.00 | $333,614.30 | | | | | | | $54,600.93 | | $524,459.94 | $579,060.87 |
| | | | | | | | | | | | | | | |
| TOTAL CAPITAL COST | | $4,218,806.91 | | | | | | | | | | | | |

# APPENDIX A

# FINLEY ENGINEERING SYSTEM MAP

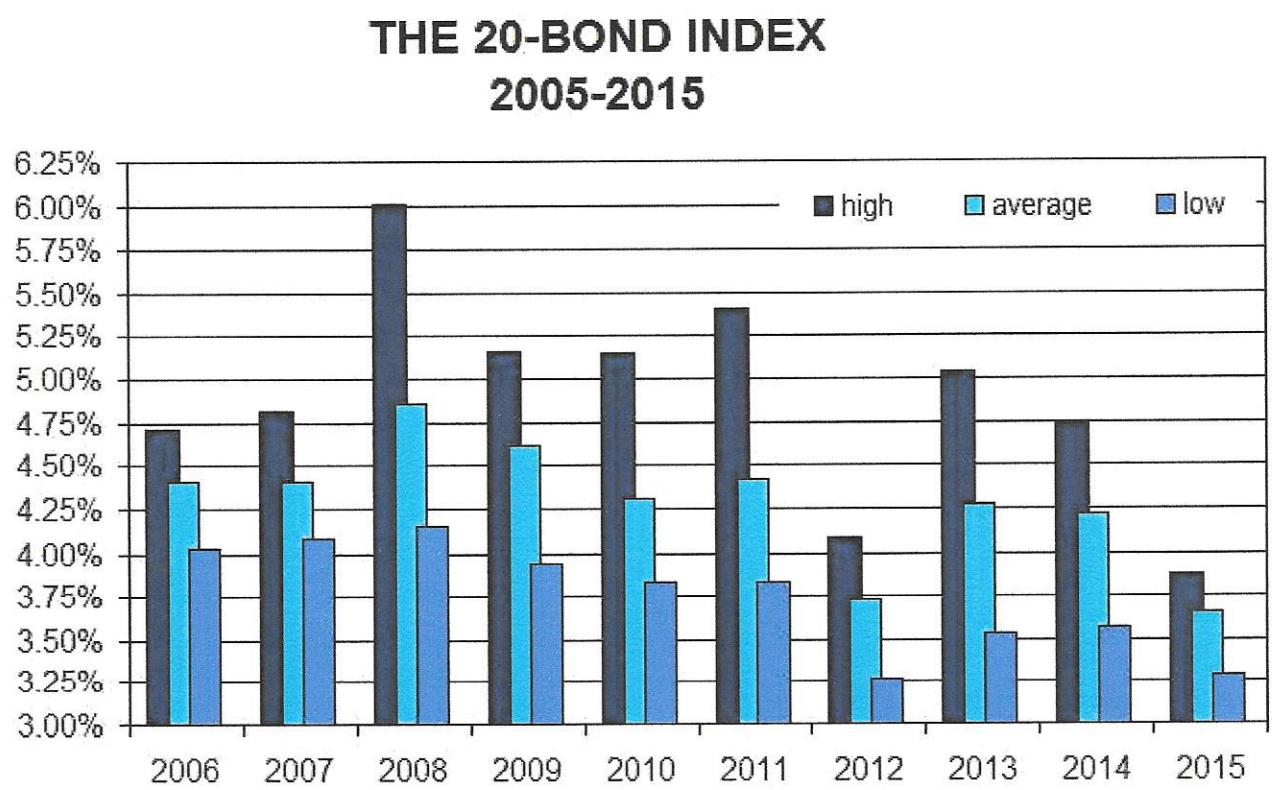
# APPENDIX B

# BOND RATES

WM Financial Strategies

## Rates Over Time - Interest Rate Trends

The following graphs set forth information relating to municipal bond yields (interest rates) trends. Four of the graphs are based on "The Bond Buyer 20-Bond GO Index". The 20-Bond GO Index is based on an average of certain general obligation municipal bonds maturing in 20 years and having an average rating equivalent of Moody's Aa2 and Standard & Poor's AA. The five graphs below are as follows (i) yields for the past ten years, (ii) weekly yields over a twenty-four month period ending September 10, 2015, (iii) yields since 1970, (iv) a comparison of the 20-Bond GO Index to 20-year US Treasury Bonds, and (v) the Municipal Market Data index for rating grades "Aa", "A" and "Baa" maturing in the 20th year. The fifth graph highlights the credit spread crisis that emerged during 2008 and is now beginning to resolve. Prior to 2008 the spreads between rating grades were generally less than 30 basis points ( .30%). Spreads between rating grades, for bonds rated AA and lower, are now over 50 basis points ( .50%).

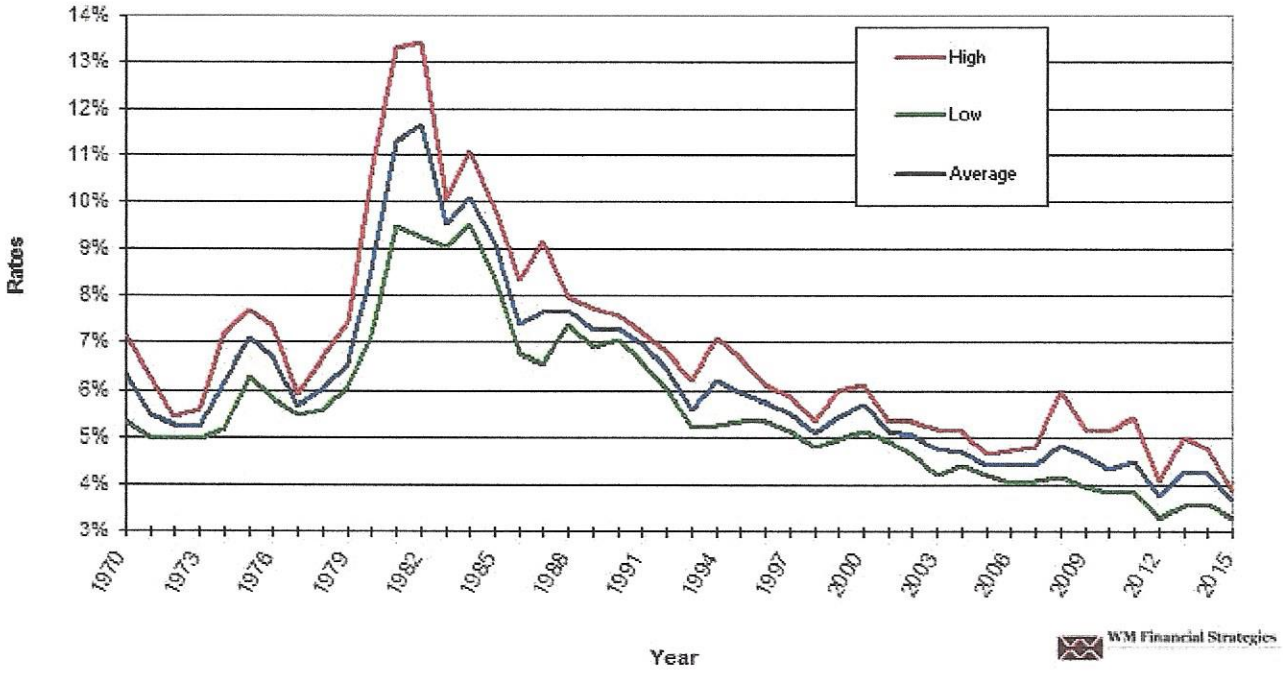



WM Financial Strategies

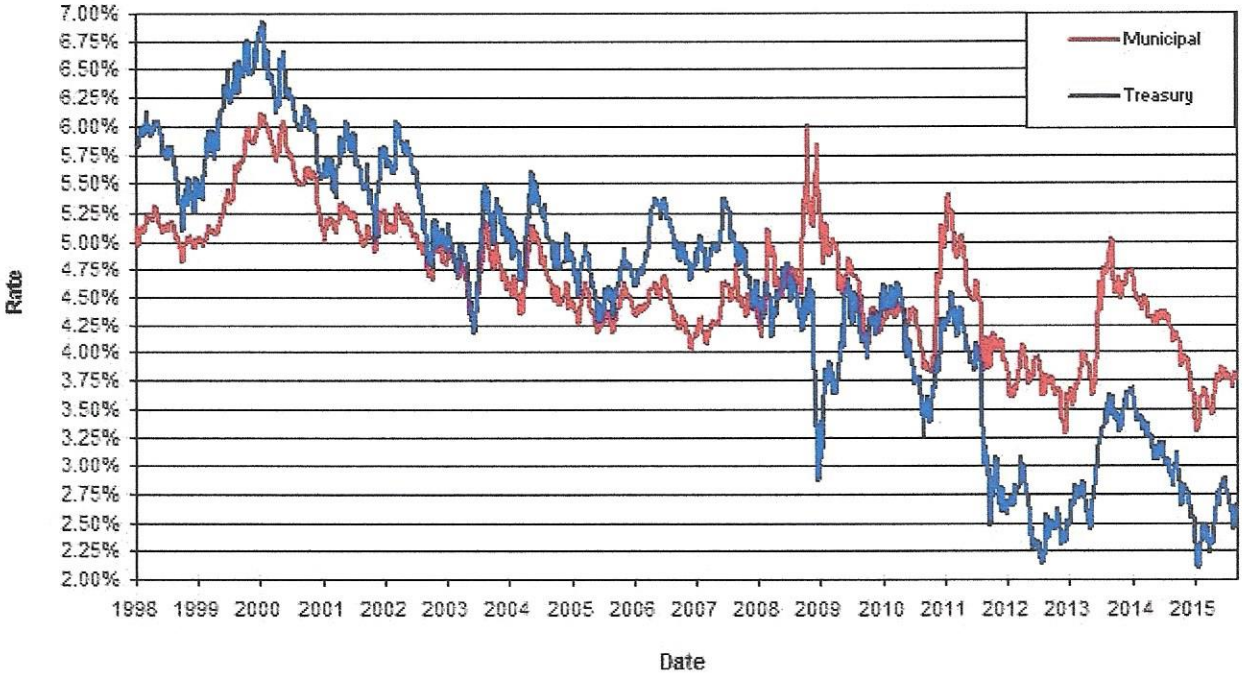
* Rate as of September 10, 2015 is 3.82%

## THE 20-BOND INDEX
## LAST 24 MONTHS - BY WEEK

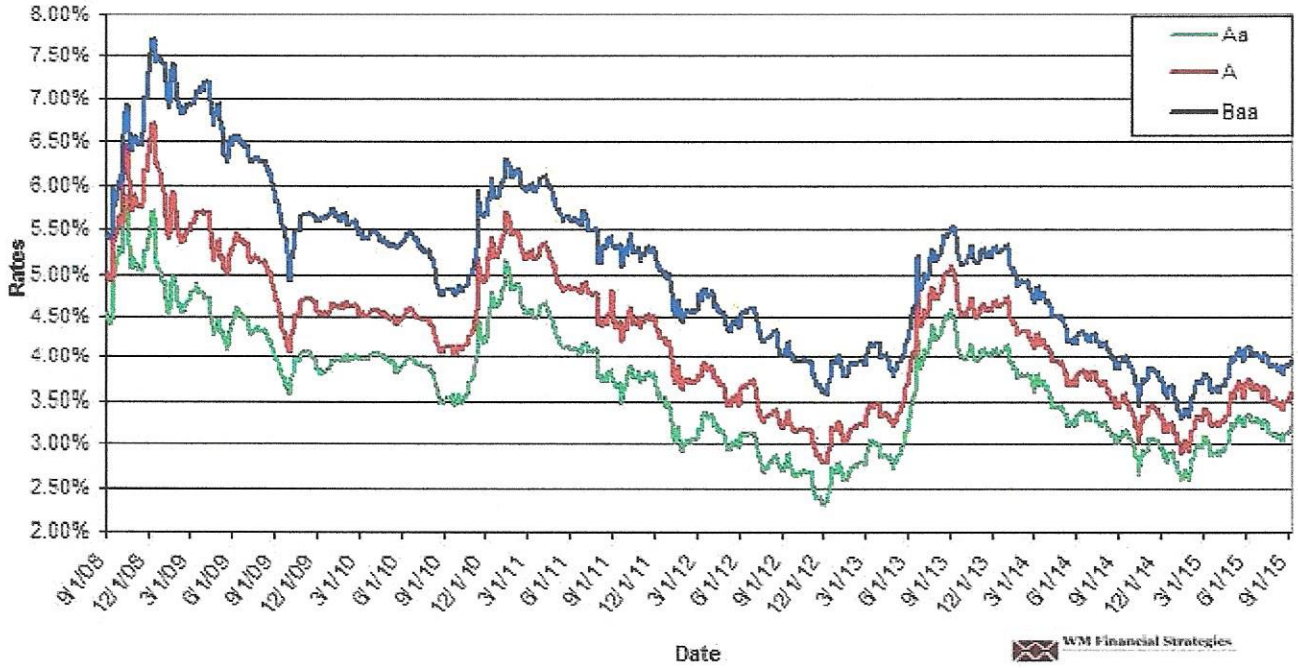
## 20-BOND BUYER INDEX
## 1970-PRESENT



## 20-BOND BUYER INDEX
## COMPARED TO 20 YEAR TREASURY BONDS




## MUNICIPAL MARKET DATA INDEX
## 20th YEAR MATURITY BY RATING GRADE



WM Financial Strategies
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Phone (314) 423-2122
Fax (314) 432-2393
JHoward@munibondadvisor.com

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fmsbonds, Inc.
Municipal Bond Specialists

## Bond Market Yields

The tables and charts below provide yield rates for AAA, AA and A rated bonds in 10, 20 and 30-year maturity ranges. These rates reflect the approximate yield to maturity that an investor can earn in today's tax-free municipal bond market as of 9/19/2015.

**AAA RATED**

| ISSUE | Maturity Range | Today | Last Week |
|---|---|---|---|
| National | 10 Year | 2.10 | 2.05 |
| National | 20 Year | 2.85 | 2.75 |
| National | 30 Year | 3.05 | 2.95 |
| Florida | 30 Year | 3.00 | 2.90 |

**AA RATED**

| ISSUE | Maturity Range | Today | Last Week |
|---|---|---|---|
| National | 10 Year | 2.30 | 2.25 |
| National | 20 Year | 3.20 | 3.10 |
| National | 30 Year | 3.55 | 3.45 |
| Florida | 30 Year | 3.50 | 3.40 |

**A RATED**

| ISSUE | Maturity Range | Today | Last Week |
|---|---|---|---|
| National | 10 Year | 2.80 | 2.75 |
| National | 20 Year | 3.45 | 3.40 |
| National | 30 Year | 3.70 | 3.65 |
| Florida | 30 Year | 3.65 | 3.60 |

*Since 1978, investors looking for municipal bonds have relied on FMSbonds for market insight and information.*

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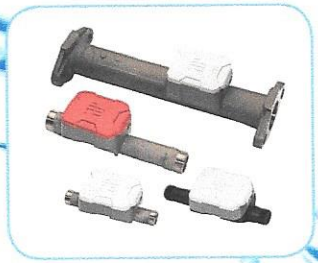
# APPENDIX C

# SMART METER

Badger Meter | Making Water Visible®



Comprehensive Metering Line

Proven AMR/AMI Technology

Powerful Analytics

# Water Utility Solutions

# Today's Demanding Water Utility Management Challenges

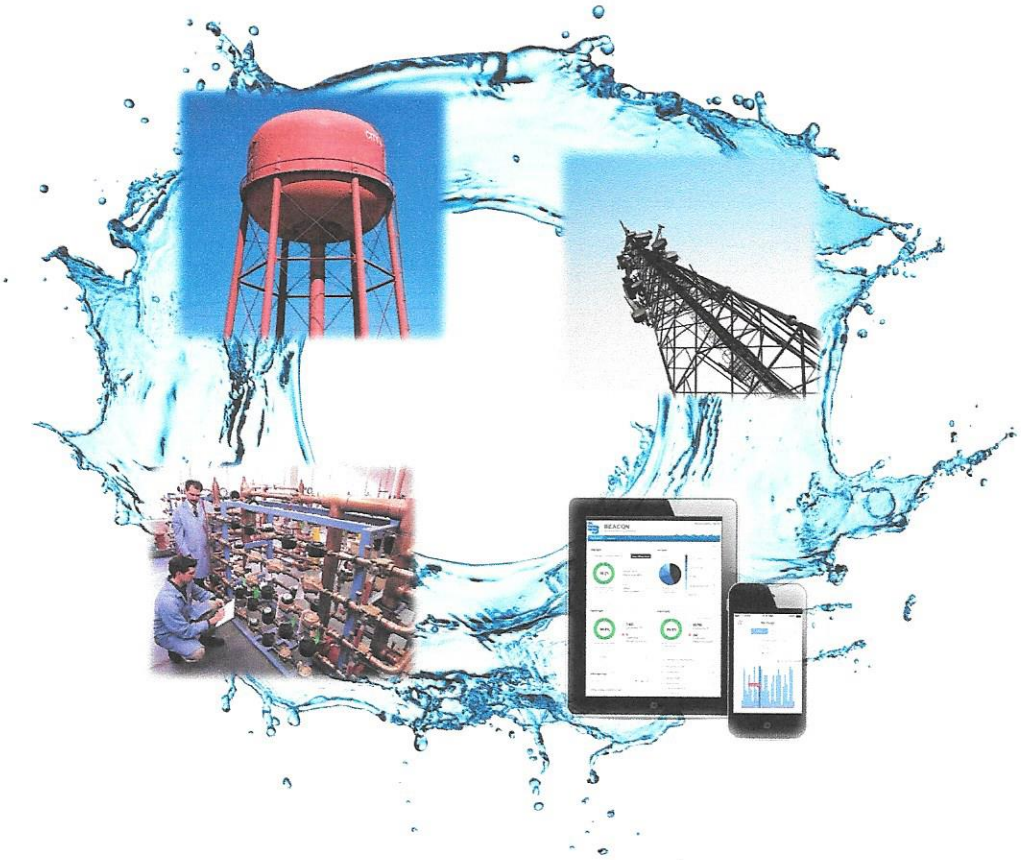
Today's business environment demands informed decision making and control over your water utility management. It's essential you efficiently manage your operations, conserve water and energy, provide superior customer service, and achieve regulatory compliance—all while continuing to control revenue and resources.

The more challenges you face, the more you need a reliable and knowledgeable partner who can supply you with durable and accurate metering hardware, and powerful yet adaptable technology solutions that give you greater visibility to timely, meaningful information.

## All the Products, Technology and Expertise You Need in a Water Metering Partner

A leader in flow measurement technology since 1905, Badger Meter continues to be a key partner in helping public and private utilities and municipalities with their water management initiatives. Because we understand the challenges utilities encounter, we can provide the tools that help communities generate needed revenue, monitor and conserve their precious resources and serve their valued end water customers.

Today, our water utility solutions are top-rated and industry-leading. We offer a comprehensive metering line, proven AMR/AMI technology and the powerful analytics tools that truly help in Making Water Visible® for thousands of water utilities.



# Choice Matters—Choose From Our Comprehensive Metering Solutions

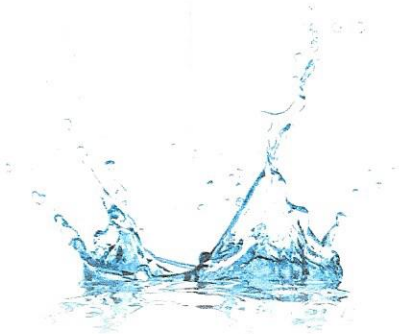
We offer a comprehensive water meter product line for residential, commercial and fire service applications. All of our meters are regulation compliant and are available in a range of metering technologies, materials and sizes. Choose between our families of Recordall®, E-Series® or M-Series® meters. Choices include BiAlloy, Engineered Polymer or Stainless Steel in a wide range of sizing options. Your choice in a water metering solution counts—choose from the many Badger Meter offerings to find a solution that meets your specific needs.

## Electronic Meters

For the latest in innovative metering technology, choose an electronic meter from Badger Meter. With no moving parts to impede the flow stream, electronic meters improve reliability, have greater extended low flow accuracy and keep maintenance to a minimum.

- E-Series Ultrasonic Meters
- M-Series Electromagnetic Meters

Electronic Meters



Mechanical Meters

## Mechanical Meters

For an accurate, cost-effective solution for your residential, commercial or fire service metering needs, choose one of our Recordall® mechanical meters. These time-tested meters are an ideal solution for measuring flow in a wide variety of applications.

- Recordall Disc Series Meters
- Recordall Compound Series Meters
- Recordall Turbo Series Meters
- Recordall Fire Service Meters and Assemblies
- Recordall Fire Hydrant Meters

Encoders

## Encoders

Badger Meter high resolution encoders (HR-E® LCD and HR-E®) provide utilities with more than just a reading. Whether you choose the 9 digit LCD or the 8-dial HR-E encoder, the high resolution encoded output provides leak detection and other critical information to help utilities manage their water. High resolution encoders utilize the industry standard communication protocol, do not require programming or setting adjustments during installation or wire repair. And, through a unique sealing process that eliminates gaskets, Badger Meter encoders are built to withstand harsh environments including flooded pits.

- High Resolution LCD Encoders
- High Resolution Encoders

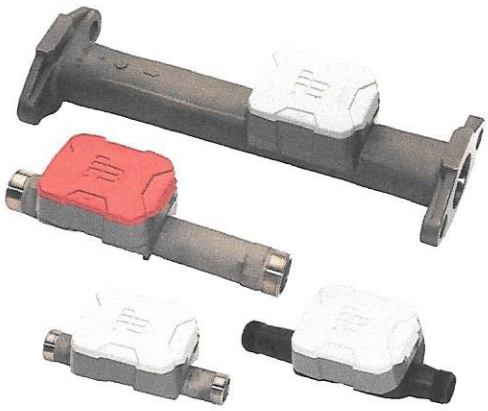
*All of our meters and encoders are compatible with Badger Meter AMR/AMI systems as well as other approved technologies.*

# Our Comprehensive Metering Lines

## E-Series® Ultrasonic Meters

E-Series Ultrasonic meters are designed to reduce maintenance, improve accuracy and durability, lower operating costs, and minimize water loss.

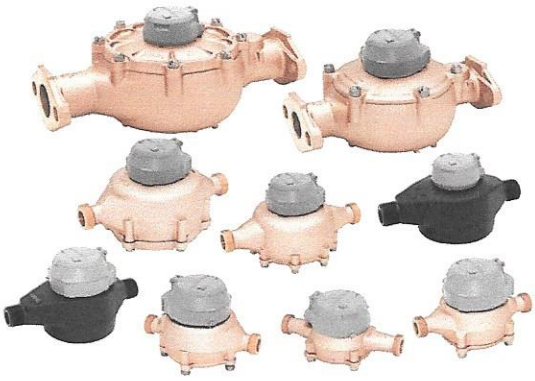
- Available in six sizes: 5/8...2 in.
- Simplified one-piece electronic meter and register integral to the meter body eliminates tampering.
- No moving parts eliminates mechanical wear.
- Delivers long-term sustained accuracy within ±1.5%.
- Complies with the lead-free provisions of the Safe Drinking Water Act.
- NSF/ANSI standards 61 and 372 certified.



## M-Series® Electromagnetic Meters

M-Series meters improve accuracy, decrease system maintenance and help meet the demands of challenging fluid conditions.

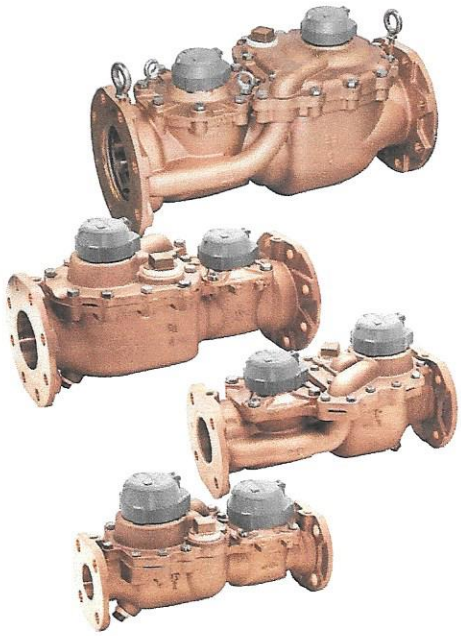
- Non-intrusive, completely open-flow tube design virtually eliminates pressure loss.
- No moving parts to impede the flow stream; maintenance is kept to a minimum—even in less-than ideal fluid conditions.
- Complies with the lead-free provisions of the Safe Drinking Water Act.
- NSF/ANSI standards 61 and 372 certified.



## Recordall® Disc Series Meters

Recordall Disc Series meters are an accurate, cost-effective solution for your residential metering needs. Our positive displacement meters utilize the industry-leading accuracy of nutating disc technology to drive revenue and reliability.*

- Available in both a lead-free bronze alloy (5/8…2 in.) and engineered polymer (5/8 in., 5/8 x 3/4 in., 1 in.).
- Delivers precision accuracy with extended flow ranges from 1/8…170 GPM.
- Exceeds AWWA C700 and C710 standards and complies with the lead-free provisions of the Safe Drinking Water Act.
- NSF/ANSI standards 61 and 372 certified.



## Recordall® Compound Series Meters

Recordall Compound Series meters combine two metering technologies in one innovative package. A positive displacement chamber measures low flow, while a turbine chamber records high flow.

- High crossover accuracy.
- Extended flow range from 1/4...4500 GPM.
- Floating rotor design reduces friction and wear.
- Features a "screw-in" valve assembly for easy field maintenance.
- Exceeds AWWA C702 standards and complies with the lead-free provisions of the Safe Drinking Water Act.
- NSF/ANSI standards 61 and 372 certified.

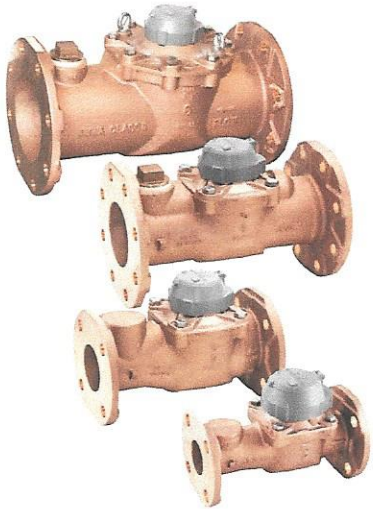
** As referenced by the Water Research Foundation.*

# Our Comprehensive Metering Lines

## Recordall® Turbo Series Meters

Recordall Turbo Series meters are the smart choice for larger facilities.

- Low pressure loss for improved efficiency.
- Extended flow range from 2-1/2...19,800 GPM.
- Floating rotor design reduces friction and wear.
- Exceeds AWWA C701 standards and complies with the lead-free provisions of the Safe Drinking Water Act.
- NSF/ANSI standards 61 and 372 certified in sizes 1-1/2...10 in.



## Recordall® Fire Hydrant Meters

Recordall Fire Hydrant meters are ideal for a temporary source of water.

- Rugged stainless steel screen.
- Optional check valve and flow rate control valve.

## Recordall® Fire Service Assemblies

Recordall Fire Series meters (FSMA) and assemblies (FSAA) are ideal for dedicated and multi-use fire service applications.

- FSMA – Ideal for measuring high volume through a single supply line.
- FSAA – Ideal for when the fire service main also supplies water for secondary services.
- Complies with the lead-free provisions of the Safe Drinking Water Act.
- NSF/ANSI standards 61 and 372 certified.

## High Resolution LCD Encoder (HR-E® LCD)

High Resolution LCD encoders are fully electronic, solid-state, field programmable and utilize industry standard ASCII-communication protocol to provide high resolution encoded output. Status indicators/alarms can also be sent as part of the encoded output to endpoints capable of receiving extended messages. In addition, the HR-E LCD offers tamper resistant features such as encoder removal and magnetic tamper indicators to provide utilities with increased security.

- Factory programmed to customer specifications with field programming capabilities.
- LCD display automatically toggles between nine-and six-digit visual resolution, rate of flow and meter model.

## High Resolution Encoder (HR-E®)

The HR-E 8-dial encoder utilizes a non-contact field-proven light emitting diode technology to provide a high resolution 8-digit reading while at the same time eliminating friction and wear of traditional mechanical encoders. The HR-E communicates using the industry standard ASCII-communication protocol to provide high resolution encoded output.

- High resolution 8-dial encoded output.
- Frictionless, non-contact wheel position encoding.

# Capture the Advantages of Fixed Network, Migratable or Mobile Technology with ORION® Endpoints

Built on a century of water metering experience, the ORION® product family has provided comprehensive Advanced Metering Analytics (AMA) for interval meter reading and data capture using both one-way and two-way communications.

Badger Meter offers four Advanced Metering Infrastructure (AMI)/Automated Meter Reading (AMR) hardware solutions as part of the ORION product family. Select the solution that's right for your utility.

## Fixed Network (AMI) Solutions

ORION Cellular and/or ORION Fixed Network (SE)

- **ORION Cellular:** Designed for maximum flexibility and rapid deployment, our two-way water endpoint eliminates utility-owned infrastructure by utilizing existing cellular infrastructure (part of our BEACON AMA solution).
- **ORION Fixed Network (SE):** This system collects meter readings and enhances operations via a two-way fixed network (AMI) system of gateways and endpoints.

## Mobile Read Data Collection (AMR) Solutions

ORION Migratable (ME) and/or ORION Classic (CE)

- **ORION Migratable (ME):** This migratable two-way mobile (AMR) system can be easily upgraded to a two-way fixed network (AMI) system to grow with your needs.
- **ORION Classic (CE):** Our industry-leading, one-way mobile (AMR) system utilizes bubble-up (broadcast) technology and is built for reliability and flexibility

# Turn Data into Proactive Intelligence

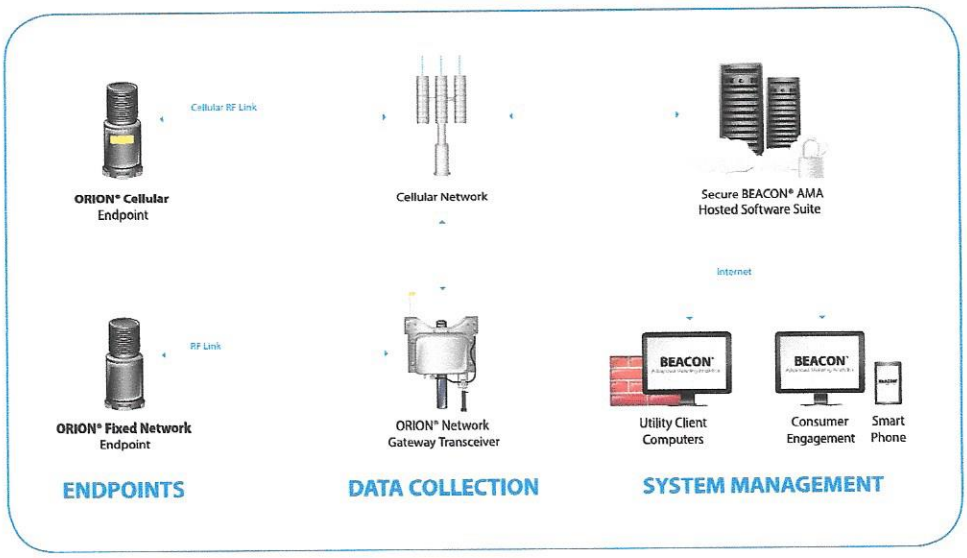
BEACON® Advanced Metering Analytics (AMA) from Badger Meter brings a new level of utility-optimizing information to light. BEACON AMA combines the power of the intuitive BEACON AMA software suite with proven ORION® AMI technology to provide your utility management with greater visibility and control.

Configured by Badger Meter for your utility, BEACON AMA uses a managed solution approach and two-way communications—plus fixed and cellular networks—to deliver a simple, yet powerful end-to-end solution.

Built-in infrastructure management services and a system design that keeps you in step with technology advancements, allows you to focus on what you do best—managing your water utility. Consumer engagement tools help you enhance customer service, increase satisfaction and reduce costs.

Better information. Better utility management. **Clearly Better.**

BEACON Advanced Metering Analytics (AMA)



# BEACON® Advanced Metering Analytics

There are many advantages and benefits to the BEACON AMA managed solution.

## BEACON AMA Provides:

- **Increased Visibility Through Analytics**
  BEACON AMA combines the power of the intuitive BEACON AMA software suite with proven ORION® AMI technology to give you greater visibility and control over utility management. Features include:
  - Customizable dashboards to deliver information in a format matched to your requirements.
  - The ability to set unique alert conditions to define and monitor exceptions.
  - Consumer engagement tools, including website access and smartphone/tablet app to enable access to individual customer information.
  - Secure, hosted platform.
  - Automatic software upgrades.
  - Integration with your utility systems: billing, work order, inventory, Customer Relationship Management (CRM), and Geographic Information Systems (GIS).

Combines intuitive BEACON AMA software suite with proven ORION AMI technology

- **Enhanced Customer Service**
  - Advanced user profile and anomaly trending
  - Consumer engagement website and smartphone/tablet app
    - The BEACON AMA consumer engagement website and smartphone/tablet app provide your end water customers with easy access to their consumption data. Your customers will be able to view and track their usage activity to gain a greater understanding of their consumption patterns.

Your customers will be able to view and track their water usage with a consumer engagement website and/or smartphone/tablet app

- **Focus on Water Management**
  - BEACON AMA is available exclusively through our managed service offering, built to minimize your deployment and system maintenance costs. These savings allow you to focus your time and resources on managing your water delivery system.
- **Future-Proof Technology**
  - With BEACON AMA, you receive the hosted BEACON AMA software suite with regular updates and the latest ORION AMI endpoint technology to future-proof your investment and keep your system in step with changes in technology.

# BEACON® Advanced Metering Analytics Software Suite

The BEACON AMA software suite is designed to transform your data into proactive intelligence and enhance your overall operations. Here are a few examples of the benefits you can expect:

## Enhanced Customer Service

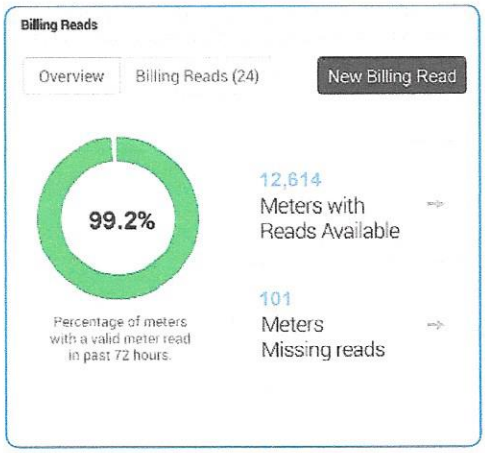
With access to timely information, respond to customer needs more effectively—and resolve billing issues quickly.

Analyze a consumption profile over selected time periods and rapidly respond to customer inquiries.

## Simplified Revenue Management

The system supports increased profitability by efficiently importing and exporting billing.

Improve your process—and access information easily on user-friendly, intuitive screens.



## Faster Leak Detection

Set leak detection alerts and thresholds to quickly understand where problems are occurring.

Set threshold and leak detection alerts to monitor water use.

## Making Water Visible to Utilities and End Water Customers

Allow end water customers to view and understand their usage profile through an easy-to-use consumer engagement website or smartphone/tablet app.

Consumers can use EyeOnWater Online (desktop), EyeOnWater App (smartphone/ tablet), EyeOnWater eSummary (email), or EyeOnWater Summary (printed) to easily gain access to their water useage data.

## Better Tools for Government Regulation Compliance

Streamline regulatory compliance by configuring a variety of reports within the BEACON AMA software suite.

Easily compile data for ever-changing compliance reporting.

## Backed by World-Class Service & Support

To protect your investments, Badger Meter offers the service and support you need to keep your utility operations running smoothly and efficiently. Our team of experts is ready to assist you.

### Customer Service & Technical Support | 800-616-3837

From general product applications to order placement, our friendly and knowledgeable Customer Service team supports you every step of the way during the ordering process. And, our Technical Support team provides you with the resources and technical assistance necessary to maximize your Badger Meter investments. Assistance is available 24 hours a day, seven days a week.

### Field Support

When you need installation and project management for your meters or metering infrastructure, discover what Badger Meter Field Support has to offer. An accomplished team of experts is ready to assist you. We specialize in project management to help you get the most from your Badger Meter system.

### Training Support

Maximize your utility operations with the wide range of learning opportunities offered by Badger Meter. Courses are designed to arm you and your team with the skills and best practices needed to maintain and promote successful operations.

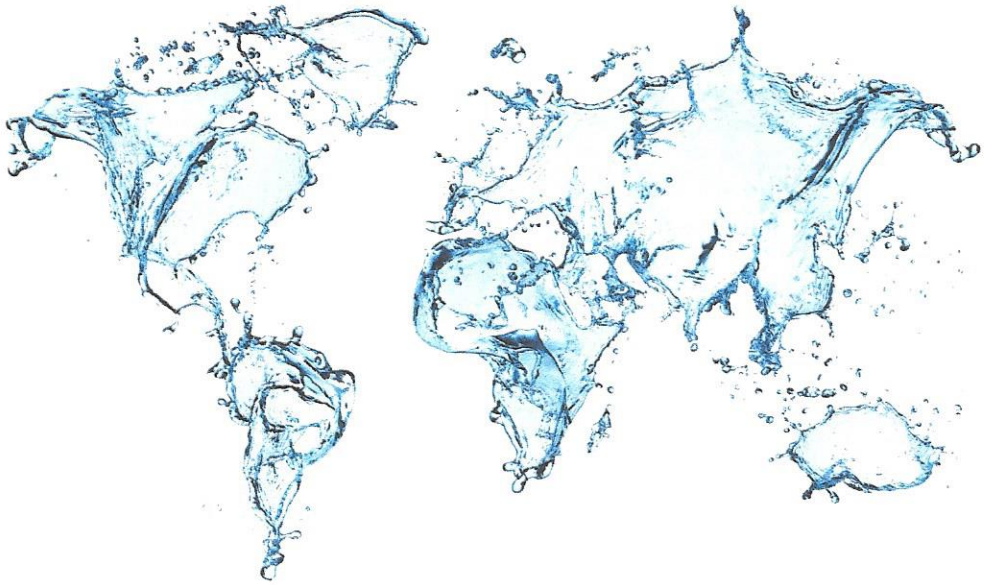
### Website

For more information, visit our website at www.badgermeter.com.

## One drop at a time.

At Badger Meter, we know it all adds up. That's why we continually improve our products to be even more accurate, more efficient and more effective at measuring and tracking your water flow. With industry-leading initiatives like Advanced Metering Analytics (AMA), Badger Meter provides the solutions you need to help boost profitability and conservation efforts.

When every drop counts, choose Badger Meter. We focus on **Making Water Visible** so you can optimize your operation.



**Making Water Visible®**

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INC-BR-00625-EN-05 (February 2015)

Badger Meter

# ORION® Water Endpoints

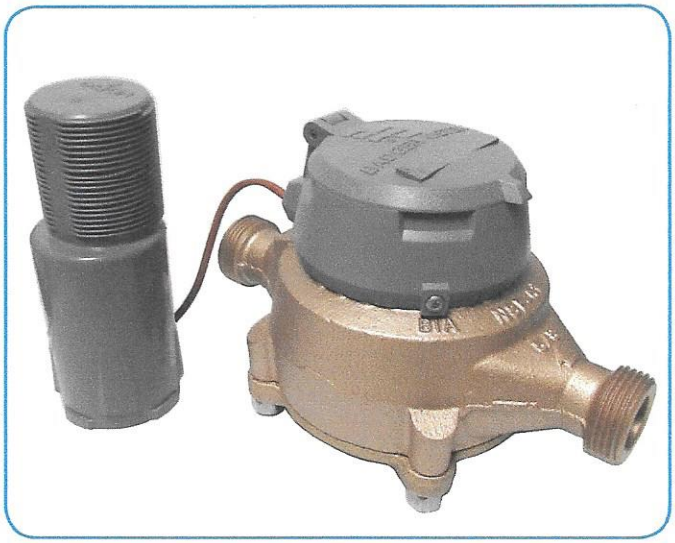
## Fixed Network Endpoint

## DESCRIPTION

The ORION® Fixed Network endpoint (SE) is a two-way water endpoint for use in fixed network meter reading deployments.

When installed, ORION Fixed Network endpoints initially operate in mobile priority mode and automatically transition to fixed network priority mode of operation once ORION network gateway transceivers and Badger Meter reading data management software are deployed. In fixed network priority mode, ORION Fixed Network endpoints will simultaneously transmit a mobile message to allow mobile data collection of the utility's meter data at any time. The endpoint automatically transitions back to mobile priority mode if the network is disrupted for an extended period of time.

The Fixed Network endpoint is a member of the time-tested ORION family of products from Badger Meter, designed for maximum flexibility. Since 2002, the ORION product family has been providing comprehensive Advanced Metering Analytics (AMA) for interval meter reading and data capture using both one-way and two-way communications.



## FUNCTIONALITY

**Operation:** The ORION Fixed Network endpoint continuously monitors the encoder circuit. At predetermined intervals, the endpoint broadcasts the totalized reading value along with other meter data to the network gateway transceivers or mobile collection devices.

**Activation:** ORION Fixed Network endpoints offer a Smart Activation feature. All ORION endpoints are shipped in an inactive, non-transmitting state. After the endpoint is installed, it begins broadcasting data when the encoder senses the first usage of water. No field programming or tools are required to activate the endpoint.

**Broadcast Mode:** Once activated, ORION Fixed Network endpoints begin transmitting in mobile priority mode. After installation, using the endpoint two-way communication and "smart mode" intelligence, endpoints designated for use in a fixed network deployment automatically detect ORION network gateway transceivers in the area, which signal the endpoints to transition to broadcast in fixed network priority mode. In fixed network priority mode, an endpoint transmits its fixed network message data once an hour while concurrently broadcasting its mobile message once every ten seconds.

In mobile priority mode, an endpoint transmits its meter data every six seconds.

**Data Profiling:** ORION Fixed Network endpoints store up to 90 days of hourly historical interval meter data within nonvolatile memory.

**Output Message:** The endpoint broadcasts its unique serial number, current meter reading, daily snapped meter reading and applicable status indicators. Each hour, through the use of a synchronized embedded real-time clock, an ORION endpoint operating in fixed network priority mode stores and automatically broadcasts its top-of-the-hour meter readings for fixed network data collection, while also broadcasting a mobile message—the endpoint's meter data and status indicators—for collection by an ORION mobile data collector.

## APPLICATION

**Configurations**: Available in integral, remote or endpoint-only configurations, the ORION Fixed Network endpoint can be deployed in indoor, outdoor and pit applications. The endpoint electronics and battery assembly are fully encapsulated in epoxy for environmental integrity.

**Meter Compatibility**: When attached to a Badger Meter encoder, the ORION Fixed Network endpoint is compatible with all current Badger Meter Recordall® Disc, Turbo Series, Compound Series, Combo Series and Fire Service meters and assemblies, and with E-Series® Ultrasonic and M-Series® Electromagnetic Flow meters.

**Encoder Compatibility**: The ORION Fixed Network endpoint is suitable for use with all Badger Meter encoders as well as the following Badger Meter approved three-wire encoder registers that have a manufacture date of 2000 or newer, are programmed into the AMR/AMI three-wire output mode and have three-wires connected: Elster C700 Digital, InVISION and ScanCoder® encoders and evoQ4 meter (encoder output); Hersey® Translator; Master Meter® Octave® Ultrasonic meter encoder output; Metron-Farnier Hawkeye; Neptune® ProRead, E-Coder® and ARB-V®; and Sensus® Electronic Register encoder (ECR) and ICE.

## SPECIFICATIONS

| | |
|---|---|
| **Dimensions** | 5.125" (H); 1.75" (W) at top; 2.125" (W) at bottom |
| **Broadcast Frequency MHz Band** | FCC regulated 902-928 MHz frequency hopping modulation |
| **Operating Temperature Range – Storage and Meter Reading** | -40°…60° C (-40°…140° F) based on storage and meter reading. RF output may be reduced by extremely low temperatures. The water meter should not be subjected to temperatures below freezing. |
| **Humidity** | 0% …100% condensing |
| **Battery** | One (1) lithium thionyl chloride C cell (nonreplaceable) |
| **Battery Life** | 20 years (calculated) |
| **Endpoint/Encoder or E-Series Ultrasonic Meter Assembly** | Badger Meter 308 connector with 6-, 25- or 75-foot lead length |
| **Endpoint Only** | 3-, 10-, 25- or 75-foot lead length prewired |

**Construction**: All ORION Fixed Network endpoints are housed in an engineered polymer enclosure with an ORION RF board, battery and antenna. To assure long-term performance, the enclosure is fully potted to withstand harsh environments and to protect the electronics in flooded or submerged pit applications.

**Range**: Transmission reception depends on a number of factors, including the location of the network gateway transceiver. Other factors include topographical features, a building's construction materials and obstacles such as buildings, trees, vegetation and fences. Temporary conditions, such as a vehicle parked near the endpoint or heavy rain or snow, could also affect reception. These factors need to be considered when installing or designing a fixed network system layout and communicating with the endpoint using a handheld or mobile reading system. For a more in-depth discussion, see the white paper, *Understanding RF Propagation of AMR/AMI Systems*, available at *www.badgermeter.com*.

## FEATURES

| | |
|---|---|
| **Communication Type** | Two-Way |
| **Application Type** | Control/Monitor |
| **Reading Interval Type** | Hourly |
| **Encoder Compatibility** | Absolute/Incremental |
| **Fixed Network Reading** | ✓ |
| **Mobile Reading in Fixed Network Mode** | ✓ |
| **Premise Leak Detection** | ✓ |
| **Cut-Wire Indication** | ✓ |
| **Reverse Flow Indication (Absolute Encoder)** | ✓ |
| **No Usage Indication** | ✓ |
| **Encoder Error (Absolute Encoder)** | ✓ |
| **Low Battery Indication** | ✓ |
| **Remote Programming** | ✓ |
| **Remote Clock Synchronization** | ✓ |
| **Firmware Upgrades** | ✓ |

**License Requirements**: ORION Fixed Network endpoints comply with Part 15 of the FCC Rules. No license is required by the utility to operate an ORION meter reading system.

**Transportation**: The Federal Aviation Administration prohibits operating transmitters and receivers on all commercial aircraft. The ORION endpoint is considered an operating transmitter and cannot be shipped by air.

**Caution**: Changes or modifications to the equipment that are not expressly approved by Badger Meter could void the user's authority to operate the equipment.

Making Water Visible®

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Legacy Document Number: Excerpt from ORI-DS-00197-EN

# APPENDIX D

# PHONE SURVEY RESULTS

TRITON POLLING & RESEARCH

# Survey Results

## Survey of Residents of Peculiar, Missouri

Conducted: 9/8/2015 through 9/13/2015
Survey Type: Live interview telephone
N = 199
Margin of Error at 95% Confidence Level: +/- 6.2%

### Statistical Analysis of Q4, Q8, Q9, Q10 and Q15

| | | Q4: Now I would like to ask you some questions about your current Internet provider. Can you tell me about how much you pay for Internet service per month? | Q8: On a scale of 1 to 10, with 1 being the best and 10 being the worst, please rate your satisfaction with the COST of your current Internet service? | Q9: On a scale of 1 to 1 0, with 1 being the best and 10 being the worst, please rate your satisfaction with the SPEED and RELIABILITY of your current Internet service? | Q10: On a scale of 1 to 10, with 1 being the best and 10 being the worst, please rate your OVERALL SATISFACTION with your current Internet provider? | Q15: For the services mentioned in the last two questions, what would you find as "fair" for a one time installation cost of bringing that service to your home? This would include and wiring and work needed to bring the connection directly to your computer. |
|---|---|---|---|---|---|---|
| N | # of Responses | 159 | 199 | 199 | 199 | 106 |
| Mean | | 67.24 | 5.61 | 5.32 | 5.24 | 74.43 |
| Median | | 60.00 | 5.00 | 5.00 | 5.00 | 50.00 |
| Mode | | 60[a] | 5 | 5 | 5 | 50 |
| Percentiles | 25 | 48.00 | 4.00 | 3.00 | 3.00 | 30.00 |
| | 50 | 60.00 | 5.00 | 5.00 | 5.00 | 50.00 |
| | 75 | 80.00 | 7.00 | 7.00 | 7.00 | 100.00 |

a. Multiple modes exist. The smallest value is shown

### Topline Results

**Q1: First, may I ask if you or anyone living in your household currently has a computer?**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Yes | 189 | 95.0 | 95.0 |
| No | 10 | 5.0 | 100.0 |
| Total | 199 | 100.0 | |

**Q1A: You answered NO to the question of anyone in your household having a computer. May I ask if you or anyone in your household intends to purchase a computer in the next 6 months?**

| | | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|---|
| | Yes | 4 | 40.0 | 40.0 |
| | No | 6 | 60.0 | 100.0 |
| | Total | 10 | 100.0 | |
| | Question not asked | 189 | | |
| Total | | 199 | | |

**Q2: Can you tell me if you have access to the Internet at your home? Do you have a connection through either dial up, DSL, Wireless or some other source that you use to access the Internet from your home?**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Dial up internet | 3 | 1.5 | 1.5 |
| DSL from the phone company | 34 | 17.1 | 18.6 |
| Wireless | 27 | 13.6 | 32.2 |
| Other type | 19 | 9.5 | 41.7 |
| No internet access | 9 | 4.5 | 46.2 |
| Cable internet | 107 | 53.8 | 100.0 |
| Total | 199 | 100.0 | |

**Q2: "Other" Responses**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Close ended response | 179 | 89.9 | 89.9 |
| AT&T | 3 | 1.5 | 91.5 |
| Cellular provider | 3 | 1.5 | 94.5 |
| Don't know | 3 | 1.5 | 96.0 |
| Bundled with phone | 2 | 1.0 | 93.0 |
| Hotspot | 2 | 1.0 | 98.0 |
| Broadband | 1 | .5 | 92.0 |
| Fairpoint | 1 | .5 | 96.5 |
| Hot Spot Version | 1 | .5 | 97.0 |
| Other | 1 | .5 | 98.5 |
| Phone company | 1 | .5 | 99.0 |
| Satellite | 1 | .5 | 99.5 |
| Sprint | 1 | .5 | 100.0 |
| Total | 199 | 100.0 | |

**Q2A: You answered that you "do not" currently have Internet access at your home. If a fast and affordable Internet service were available at prices you felt were fair, would you be willing to consider it for you and the members of your family? Please rate your interest on a scale of 1 to 5, with 1 being the most interested and 5 being the least interested.**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| 1 - Most interested | 5 | 50.0 | 50.0 |
| 2 | 2 | 20.0 | 70.0 |
| 3 - Neutral / not sure | 1 | 10.0 | 80.0 |
| 4 | 1 | 10.0 | 90.0 |
| 5 - Lease interested | 1 | 10.0 | 100.0 |
| Total | 10 | 100.0 | |
| Question not asked | 189 | | |
| Total | 199 | | |

**Q3:You answered YES to having access to the Internet at your home; can you tell me who the current Internet provider at your home is?**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Comcast | 114 | 57.3 | 57.3 |
| Fairpoint | 43 | 21.6 | 78.9 |
| AT&T | 8 | 4.0 | 82.9 |
| None | 6 | 3.0 | 85.9 |
| Sprint | 6 | 3.0 | 88.9 |
| Don't know | 4 | 2.0 | 91.0 |
| Verizon | 4 | 2.0 | 93.0 |
| T mobile | 3 | 1.5 | 94.5 |
| Bell South | 1 | .5 | 95.0 |
| Boost Mobile | 1 | .5 | 95.5 |
| Cell phone | 1 | .5 | 96.0 |
| Charter | 1 | .5 | 96.5 |
| Clear | 1 | .5 | 97.0 |
| Hotbox verizon | 1 | .5 | 97.5 |
| N/A | 1 | .5 | 98.0 |
| Other | 1 | .5 | 98.5 |
| Satellite | 1 | .5 | 99.0 |
| Time warner | 1 | .5 | 99.5 |
| Viasat | 1 | .5 | 100.0 |
| Total | 199 | 100.0 | |

**Q4: Now I would like to ask you some questions about your current Internet provider. Can you tell me about how much you pay for Internet service per month?**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| 0 | 1 | .6 | .6 |
| 7 | 1 | .6 | 1.3 |
| 16 | 1 | .6 | 1.9 |
| 20 | 3 | 1.9 | 3.8 |
| 29 | 3 | 1.9 | 5.7 |
| 30 | 5 | 3.1 | 8.8 |
| 33 | 1 | .6 | 9.4 |
| 35 | 5 | 3.1 | 12.6 |
| 40 | 8 | 5.0 | 17.6 |
| 41 | 2 | 1.3 | 18.9 |
| 42 | 1 | .6 | 19.5 |
| 43 | 1 | .6 | 20.1 |
| 45 | 6 | 3.8 | 23.9 |
| 47 | 1 | .6 | 24.5 |
| 48 | 1 | .6 | 25.2 |
| 49 | 1 | .6 | 25.8 |
| 50 | 14 | 8.8 | 34.6 |
| 51 | 1 | .6 | 35.2 |
| 52 | 1 | .6 | 35.8 |
| 55 | 6 | 3.8 | 39.6 |
| 56 | 4 | 2.5 | 42.1 |
| 60 | 15 | 9.4 | 51.6 |
| 62 | 2 | 1.3 | 52.8 |
| 64 | 1 | .6 | 53.5 |
| 65 | 8 | 5.0 | 58.5 |
| 70 | 14 | 8.8 | 67.3 |
| 72 | 1 | .6 | 67.9 |
| 75 | 3 | 1.9 | 69.8 |
| 77 | 2 | 1.3 | 71.1 |
| 78 | 1 | .6 | 71.7 |

**Q4: Continued**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| 80 | 15 | 9.4 | 81.1 |
| 86 | 3 | 1.9 | 83.0 |
| 87 | 1 | .6 | 83.6 |
| 90 | 3 | 1.9 | 85.5 |
| 94 | 1 | .6 | 86.2 |
| 97 | 2 | 1.3 | 87.4 |
| 100 | 3 | 1.9 | 89.3 |
| 103 | 2 | 1.3 | 90.6 |
| 115 | 1 | .6 | 91.2 |
| 120 | 2 | 1.3 | 92.5 |
| 125 | 1 | .6 | 93.1 |
| 130 | 4 | 2.5 | 95.6 |
| 140 | 1 | .6 | 96.2 |
| 150 | 3 | 1.9 | 98.1 |
| 190 | 1 | .6 | 98.7 |
| 200 | 2 | 1.3 | 100.0 |
| Total | 159 | 100.0 | |
| "Other" Response | 40 | | |
| Total | 199 | | |

**Q4: "Other" Responses**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Close ended response | 153 | 76.9 | 76.9 |
| Bundled | 21 | 10.6 | 87.4 |
| Don't know | 13 | 6.5 | 94.0 |
| Provided by work | 3 | 1.5 | 95.5 |
| N/A | 2 | 1.0 | 96.5 |
| No internet | 2 | 1.0 | 97.5 |
| Prefer not to say | 2 | 1.0 | 98.5 |
| Bundle | 1 | .5 | 99.0 |
| Just moved | 1 | .5 | 99.5 |
| Not sure | 1 | .5 | 100.0 |
| Total | 199 | 100.0 | |

**Q5: Now I would like to ask you some questions about the speed of the Internet service provided by your current provider. Would you say that your current Internet connection is...**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Very fast | 24 | 12.1 | 12.1 |
| Fast | 79 | 39.7 | 51.8 |
| Not very fast | 50 | 25.1 | 76.9 |
| Kind of slow | 21 | 10.6 | 87.4 |
| Slow | 7 | 3.5 | 91.0 |
| Very slow | 4 | 2.0 | 93.0 |
| Don't know | 14 | 7.0 | 100.0 |
| Total | 199 | 100.0 | |

**Q6: If I asked you the actual download speed of your current Internet connection, would you have any idea? Some examples of common speeds are:**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Less than 1.5 Megs | 5 | 2.5 | 2.5 |
| 3 Megs | 6 | 3.0 | 5.5 |
| 5 Megs | 13 | 6.5 | 12.1 |
| 10 Megs | 17 | 8.5 | 20.6 |
| Not sure | 138 | 69.3 | 89.9 |
| More htan 10 Megs | 5 | 2.5 | 92.5 |
| More than 25 Megs | 2 | 1.0 | 93.5 |
| More than 50 Megs | 13 | 6.5 | 100.0 |
| Total | 199 | 100.0 | |

**Q7: If you had a choice, would you want your Internet connection to be...**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Slower | 1 | .5 | .5 |
| The same as it is now | 33 | 16.6 | 17.1 |
| Faster | 99 | 49.7 | 66.8 |
| Much faster | 57 | 28.6 | 95.5 |
| Don't know | 9 | 4.5 | 100.0 |
| Total | 199 | 100.0 | |

**Q8: On a scale of 1 to 10, with 1 being the best and 10 being the worst, please rate your satisfaction with the COST of your current Internet service?**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| 1 - Best | 17 | 8.5 | 8.5 |
| 2 | 5 | 2.5 | 11.1 |
| 3 | 19 | 9.5 | 20.6 |
| 4 | 13 | 6.5 | 27.1 |
| 5 | 48 | 24.1 | 51.3 |
| 6 | 22 | 11.1 | 62.3 |
| 7 | 30 | 15.1 | 77.4 |
| 8 | 20 | 10.1 | 87.4 |
| 9 | 11 | 5.5 | 93.0 |
| 10 - Worst | 14 | 7.0 | 100.0 |
| Total | 199 | 100.0 | |

**Q9: On a scale of 1 to 1 0, with 1 being the best and 10 being the worst, please rate your satisfaction with the SPEED and RELIABILITY of your current Internet service?**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| 1 - Best | 18 | 9.0 | 9.0 |
| 2 | 11 | 5.5 | 14.6 |
| 3 | 21 | 10.6 | 25.1 |
| 4 | 21 | 10.6 | 35.7 |
| 5 | 40 | 20.1 | 55.8 |
| 6 | 21 | 10.6 | 66.3 |
| 7 | 22 | 11.1 | 77.4 |
| 8 | 26 | 13.1 | 90.5 |
| 9 | 6 | 3.0 | 93.5 |
| 10 - Worst | 13 | 6.5 | 100.0 |
| Total | 199 | 100.0 | |

**Q10: On a scale of 1 to 10, with 1 being the best and 10 being the worst, please rate your OVERALL SATISFACTION with your current Internet provider?**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| 1 - Best | 18 | 9.0 | 9.0 |
| 2 | 16 | 8.0 | 17.1 |
| 3 | 19 | 9.5 | 26.6 |
| 4 | 13 | 6.5 | 33.2 |
| 5 | 49 | 24.6 | 57.8 |
| 6 | 18 | 9.0 | 66.8 |
| 7 | 27 | 13.6 | 80.4 |
| 8 | 20 | 10.1 | 90.5 |
| 9 | 8 | 4.0 | 94.5 |
| 10 - Worst | 11 | 5.5 | 100.0 |
| Total | 199 | 100.0 | |

**Q11: What would you say is the biggest shortcoming of your current Internet provider?**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Poor reliability | 40 | 20.1 | 20.1 |
| Too expensive | 34 | 17.1 | 37.2 |
| No shortcomings | 27 | 13.6 | 50.8 |
| Slow speed | 20 | 10.1 | 60.8 |
| Poor customer service | 15 | 7.5 | 68.3 |
| Too expensive, slow speed | 12 | 6.0 | 74.4 |
| No competition | 7 | 3.5 | 77.9 |
| Don't know | 5 | 2.5 | 80.4 |
| Cost, poor customer service | 3 | 1.5 | 81.9 |
| Data usage limitations | 3 | 1.5 | 83.4 |
| Doesn't work well | 3 | 1.5 | 84.9 |
| Not sure | 3 | 1.5 | 86.4 |
| Forced to bundle | 2 | 1.0 | 87.4 |
| Poor reliability, slow speed | 2 | 1.0 | 88.4 |
| Too expensive / Slow speed | 2 | 1.0 | 89.4 |
| Too expensive, poor customer service | 2 | 1.0 | 90.5 |
| Charges without notification, raise the prices without notice | 1 | .5 | 91.0 |
| Cost & Realiability | 1 | .5 | 91.5 |
| Cost, data usage limits | 1 | .5 | 92.0 |
| Cost, extra fees and charges | 1 | .5 | 92.5 |
| Cost, forced to bundle | 1 | .5 | 93.0 |
| Doesn't like contracts | 1 | .5 | 93.5 |
| Installation | 1 | .5 | 94.0 |
| Limited service options | 1 | .5 | 94.5 |
| No one else but Comcast | 1 | .5 | 95.0 |
| Not enough optoins | 1 | .5 | 95.5 |
| Poor customer service, not acheiving the promised speeds. | 1 | .5 | 96.0 |
| Poor customer service, office too far away | 1 | .5 | 96.5 |
| Poor customer service, too expensive | 1 | .5 | 97.0 |
| Poor reliability, customer service | 1 | .5 | 97.5 |
| poor service | 1 | .5 | 98.0 |
| Poor service and way overpriced | 1 | .5 | 98.5 |
| Reliability problems due to weather | 1 | .5 | 99.0 |
| Slow speed, data usage limitations | 1 | .5 | 99.5 |
| Too expensive, poor reliability | 1 | .5 | 100.0 |
| Total | 199 | 100.0 | |

**Q12: What role would you think best for the City of Peculiar to play in bringing high speed reliable broadband service to the community:**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| The City should only solicit interest from private companies. The City should not be involved | 45 | 22.6 | 22.6 |
| The City should implement a broadband network and operate it like a City utility similar to the water and sewer utility. | 26 | 13.1 | 35.7 |
| The City should consider partnering with private companies such as maybe the City facilitating the | 55 | 27.6 | 63.3 |
| The City should play no role in bringing broadband to the city. | 73 | 36.7 | 100.0 |
| Total | 199 | 100.0 | |

**Q12A: If you answered a) above and the City solicited private companies to implement the broadband network only to find that no private companies were interested would you change your answer to the above question.**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Yes | 21 | 44.7 | 44.7 |
| No | 16 | 34.0 | 78.7 |
| Not sure / don't know | 10 | 21.3 | 100.0 |
| Total | 47 | 100.0 | |
| Question not asked | 152 | | |
| Total | 199 | | |

**Q13: If a new "standard level" of service that was offered in addition to the service mentioned in the last question were made available that provided exceptionally fast Internet access and reliable 24 hour service with speeds up to 250 MPS download and 250 MPS upload at a cost of less than $ 50 dollars per month, would you be...**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Somewhat interested | 54 | 27.1 | 27.1 |
| Interested | 114 | 57.3 | 84.4 |
| Not interested in receiving | 8 | 4.0 | 88.4 |
| Not sure / don't know | 23 | 11.6 | 100.0 |
| Total | 199 | 100.0 | |

**Q14: And finally, if a new "premium level" of service became available that was offered in addition to the two services mentioned earlier that provided exceedingly fast Internet access and reliable 24 hour service with speeds up to 1000 MPS upload at a cost of less the $70 dollars per month, would you be...**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Somewhat interested | 40 | 20.1 | 20.1 |
| Interested | 77 | 38.7 | 58.8 |
| Not interested in receiving | 58 | 29.1 | 87.9 |
| Not sure / don't know | 24 | 12.1 | 100.0 |
| Total | 199 | 100.0 | |

**Q15: For the services mentioned in the last two questions, what would you find as "fair" for a one time installation cost of bringing that service to your home? This would include and wiring and work needed to bring the connection directly to your computer.**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| 5 | 1 | .9 | .9 |
| 10 | 2 | 1.9 | 2.8 |
| 20 | 3 | 2.8 | 5.7 |
| 25 | 6 | 5.7 | 11.3 |
| 30 | 1 | .9 | 12.3 |
| 30 | 14 | 13.2 | 25.5 |
| 35 | 5 | 4.7 | 30.2 |
| 40 | 4 | 3.8 | 34.0 |
| 45 | 1 | .9 | 34.9 |
| 50 | 24 | 22.6 | 57.5 |
| 55 | 2 | 1.9 | 59.4 |
| 60 | 1 | .9 | 60.4 |
| 62 | 1 | .9 | 61.3 |
| 65 | 1 | .9 | 62.3 |
| 70 | 1 | .9 | 63.2 |
| 75 | 9 | 8.5 | 71.7 |
| 85 | 1 | .9 | 72.6 |
| 99 | 2 | 1.9 | 74.5 |
| 100 | 18 | 17.0 | 91.5 |
| 150 | 2 | 1.9 | 93.4 |
| 200 | 2 | 1.9 | 95.3 |
| 250 | 2 | 1.9 | 97.2 |
| 300 | 1 | .9 | 98.1 |
| 500 | 2 | 1.9 | 100.0 |
| Total | 106 | 100.0 | |
| "Other" response | 93 | | |
| Total | 199 | | |

**Q15: "Other" Responses**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Close ended response | 111 | 55.8 | 55.8 |
| Should be included free | 49 | 24.6 | 80.4 |
| Not sure | 14 | 7.0 | 87.4 |
| n/a | 9 | 4.5 | 92.0 |
| Don't know | 5 | 2.5 | 94.5 |
| No clue | 5 | 2.5 | 97.0 |
| less than 100 | 2 | 1.0 | 98.0 |
| Based on apt managers | 1 | .5 | 98.5 |
| Not interested | 1 | .5 | 99.0 |
| Nothing | 1 | .5 | 99.5 |
| shouldn't exceed monthly cost | 1 | .5 | 100.0 |
| Total | 199 | 100.0 | |

**Q16: If affordable, fast and reliable Internet services like those described in the previous questions were offered, please rate your likelihood to switch to one of those services if it becomes available at your home. Would you be...**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Moderately likely | 35 | 17.6 | 17.6 |
| Likely | 60 | 30.2 | 47.7 |
| Very likley | 66 | 33.2 | 80.9 |
| Not likley at all | 13 | 6.5 | 87.4 |
| Don't know / not sure | 25 | 12.6 | 100.0 |
| Total | 199 | 100.0 | |

**QD1: Lastly, for statistical purposes, can you give me your age?**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Under 30 | 31 | 15.6 | 15.6 |
| 31-40 | 64 | 32.2 | 47.7 |
| 41-50 | 35 | 17.6 | 65.3 |
| 51-60 | 31 | 15.6 | 80.9 |
| 61-70 | 20 | 10.1 | 91.0 |
| 71-80 | 16 | 8.0 | 99.0 |
| 81 and older | 2 | 1.0 | 100.0 |
| Total | 199 | 100.0 | |

**QD2: How many people currently live in your household?**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| 1 | 24 | 12.1 | 12.1 |
| 2 | 66 | 33.2 | 45.2 |
| 3 | 51 | 25.6 | 70.9 |
| 4 | 36 | 18.1 | 88.9 |
| 5 | 13 | 6.5 | 95.5 |
| 6 | 4 | 2.0 | 97.5 |
| 7 | 3 | 1.5 | 99.0 |
| More than 8 | 1 | .5 | 99.5 |
| Business [not applicable] | 1 | .5 | 100.0 |
| Total | 199 | 100.0 | |

**QD3: What is the age of the youngest person in the household?**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Children under 18 | 99 | 49.7 | 49.7 |
| 18-30 | 31 | 15.6 | 65.3 |
| 31-40 | 9 | 4.5 | 69.8 |
| 41-50 | 10 | 5.0 | 74.9 |
| 51-60 | 24 | 12.1 | 86.9 |
| 61-70 | 13 | 6.5 | 93.5 |
| 71-80 | 7 | 3.5 | 97.0 |
| 81 & older | 3 | 1.5 | 98.5 |
| Business [not applicable] | 3 | 1.5 | 100.0 |
| Total | 199 | 100.0 | |

**QD4: What is the age of the oldest person in the household?**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| Children under 18 | 5 | 2.5 | 2.5 |
| 18-30 | 31 | 15.6 | 18.1 |
| 31-40 | 45 | 22.6 | 40.7 |
| 41-50 | 39 | 19.6 | 60.3 |
| 51-60 | 36 | 18.1 | 78.4 |
| 61-70 | 19 | 9.5 | 87.9 |
| 71-80 | 17 | 8.5 | 96.5 |
| 81 & older | 4 | 2.0 | 98.5 |
| Business [not applicable] | 3 | 1.5 | 100.0 |
| Total | 199 | 100.0 | |

**QD5: What is your approximate household income?**

| | Count | Valid Percent | Cumulative Percent |
|---|---|---|---|
| < $25,000 per year | 8 | 4.0 | 4.0 |
| $25 - $50,000 per year | 35 | 17.6 | 21.6 |
| $50 - $100,000 per year | 69 | 34.7 | 56.3 |
| More than $100,000 per year | 25 | 12.6 | 68.8 |
| Prefer not to answer | 30 | 15.1 | 83.9 |
| Business [not applicable] | 32 | 16.1 | 100.0 |
| Total | 199 | 100.0 | |

# APPENDIX E

# SURVEY MONKEY RESULTS

SurveyMonkey

Pro Sign Up Sign Up FREE Sign In

# City of Peculiar Broadband Initiative

Share Tweet G+ Share Share

Question Summaries | Data Trends | Individual Responses

All Pages

188 responses

9/10/2015 - 9/16/2015

6 views

Need insights?
SurveyMonkey has dozens of expertly-designed survey templates.
Sign up FREE or Learn more

Q1

## To help provide accurate demographic information, please provide your contact information

Answered: 185 Skipped: 3

| Answer Choices | | Responses | |
|---|---|---|---|
| Name | Responses | 98.92% | 183 |
| Company | Responses | 11.35% | 21 |
| Address | Responses | 96.76% | 179 |
| Address 2 | Responses | 5.95% | 11 |
| City/Town | Responses | 98.92% | 183 |
| State/Province | Responses | 97.30% | 180 |
| ZIP/Postal Code | Responses | 98.38% | 182 |
| Country | Responses | 0.00% | 0 |
| Email Address | Responses | 89.73% | 166 |
| Phone Number | Responses | 85.41% | 158 |

Q2

## Who is your current Internet Service Provider?

Answered: 183 Skipped: 5

Comcast
9/16/2015 5:11 PM

Don't have any
9/16/2015 2:46 PM

comcast
9/16/2015 8:09 AM

Comcast
9/16/2015 7:13 AM

Comcast
9/15/2015 2:54 PM

Fairpoint
9/15/2015 11:45 AM

comcast
9/15/2015 8:10 AM

Q3

## About how much do you currently pay for

## Internet Service each month?

Answered: 180 Skipped: 8

$73.00
9/16/2015 5:11 PM

80
9/16/2015 8:09 AM

$9.99
9/16/2015 7:13 AM

60$
9/15/2015 2:54 PM

$40
9/15/2015 11:45 AM

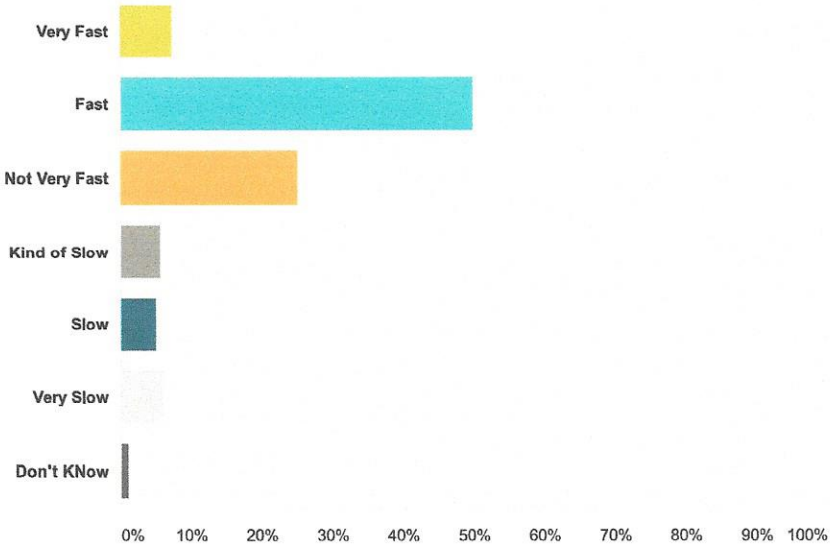
$40
9/15/2015 8:10 AM

$115 Cabel and Internet Togather
9/15/2015 7:21 AM

Q4

## Would you say that your current Internet connection speed is...

Answered: 180 Skipped: 8

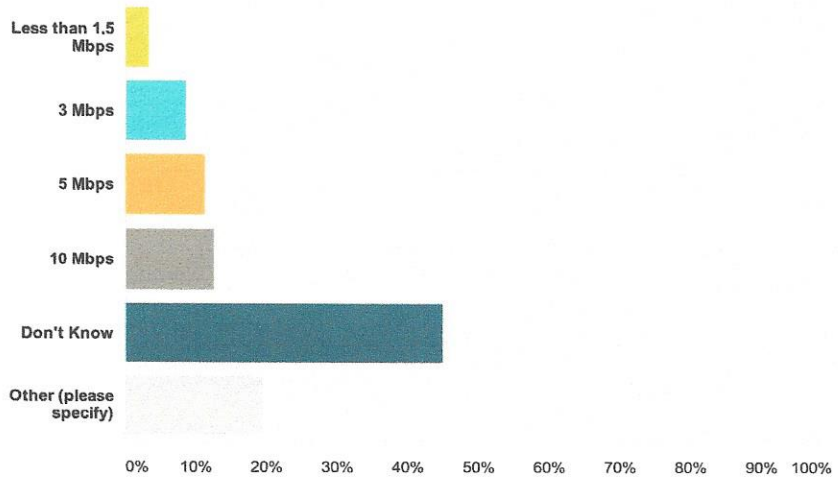



| Answer Choices | Responses | |
|---|---|---|
| **Very Fast** | **7.22%** | 13 |
| **Fast** | **50.00%** | 90 |
| **Not Very Fast** | **25.00%** | 45 |
| **Kind of Slow** | **5.56%** | 10 |
| **Slow** | **5.00%** | 9 |
| **Very Slow** | **6.11%** | 11 |
| **Don't KNow** | **1.11%** | 2 |
| Total | | 180 |

Q5

## If you know the actual download speed of your current Internet Connection, in Megabits per second, is it...

Answered: 176 Skipped: 12

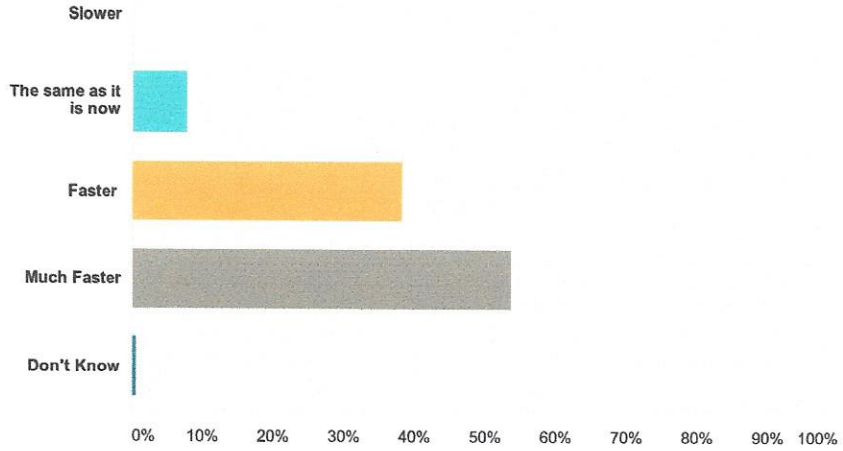



| Answer Choices | | Responses | |
|---|---|---|---|
| Less than 1.5 Mbps | | 3.41% | 6 |
| 3 Mbps | | 8.52% | 15 |
| 5 Mbps | | 11.36% | 20 |
| 10 Mbps | | 12.50% | 22 |
| Don't Know | | 44.89% | 79 |
| Other (please specify) | Responses | 19.32% | 34 |
| Total | | | 176 |

Q6

## If you had a choice, would you want you Internet connection to be...

Answered: 181 Skipped: 7




| Answer Choices | Responses | |
|---|---|---|
| Slower | 0.00% | 0 |

| | | |
|---|---|---|
| The same as it is now | 7.73% | 14 |
| Faster | 38.12% | 69 |
| Much Faster | 53.59% | 97 |
| Don't Know | 0.55% | 1 |
| Total | | 181 |

Q7

## On a scale of 1 to 10, with 1 being the best and 10 being the worst, please rate your satisfaction with the COST of your current Internet Service.

Answered: 178 Skipped: 10

10
9/16/2015 5:15 PM

8
9/16/2015 8:10 AM

1
9/16/2015 7:14 AM

5
9/15/2015 2:55 PM

5
9/15/2015 11:46 AM

8
9/15/2015 8:10 AM

5
9/15/2015 7:23 AM

Q8

## On a scale of 1 to 10, with 1 being the best and 10 being the worst, please rate your satisfaction with the SPEED and RELIABILITY of your current Internet Service.

Answered: 177 Skipped: 11

5
9/16/2015 5:15 PM

7
9/16/2015 8:10 AM

5
9/16/2015 7:14 AM

5
9/15/2015 2:55 PM

5
9/15/2015 11:46 AM

8
9/15/2015 8:10 AM

5
9/15/2015 7:23 AM

Q9

## On a scale of 1 to 10, with 1 being the best and 10 being the worst, please rate your satisfaction with the OVERALL SATISFACTION of your current Internet Service.

**Answered: 177 Skipped: 11**

7.5
9/16/2015 5:15 PM

6
9/16/2015 8:10 AM

3
9/16/2015 7:14 AM

7
9/15/2015 2:55 PM

4
9/15/2015 11:46 AM

8
9/15/2015 8:10 AM

3
9/15/2015 7:23 AM

**Q10**

## What would you say is the biggest shortcoming of your current Internet Provider?

**Answered: 171 Skipped: 17**

Speed:cost ratio
9/16/2015 5:15 PM

no options
9/16/2015 8:10 AM

Reliability
9/16/2015 7:14 AM

service
9/15/2015 2:55 PM

Service
9/15/2015 11:46 AM

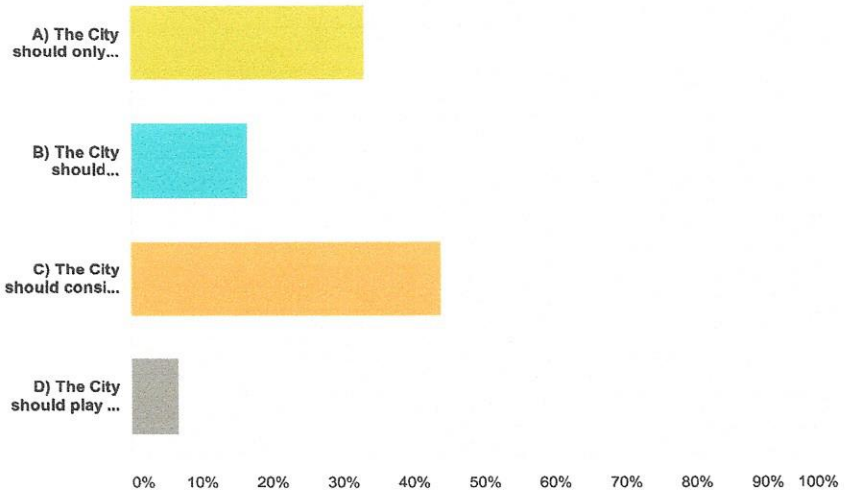
n/a
9/15/2015 8:10 AM

Limited options in this town
9/14/2015 8:40 PM

**Q11**

## What role would you think best for the City of Peculiar to play in bringing high speed reliable broadband service to the community?

**Answered: 164 Skipped: 24**




| Answer Choices | Responses | |
|---|---|---|
| **A) The City should only solicit interest from private companies. The City should NOT be involved in any way with broadband service.** | **32.93%** | 54 |
| **B) The City should implement a broadband network and operate it like a City Utility similar to the water and sewer utility.** | **16.46%** | 27 |
| **C) The City should consider partnering with private companies; such as maybe the City facilitating the construction of the physical network but having a private company operate the system.** | **43.90%** | 72 |
| **D) The City should play no role in bringing broadband to the city.** | **6.71%** | 11 |
| Total | | 164 |

**Q12**

## If you answered A) to the question above, and the City solicited private companies to implement the broadband network only to find that no private companies were interested, would you change your answer to the above question?

**Answered: 65 Skipped: 123**

NO
9/16/2015 5:18 PM

yes
9/16/2015 8:12 AM

Then they should take NO PART.
9/16/2015 7:17 AM

n/a
9/15/2015 8:12 AM

yes, to B
9/14/2015 7:46 PM

yes
9/14/2015 7:24 PM

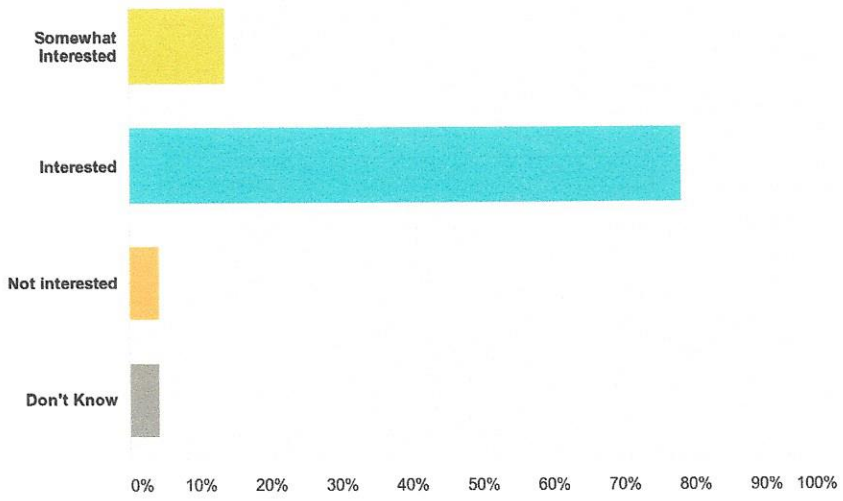
I answered A only because if it means more taxes to pay for the installment of broadband for Peculiar citizens I'm not on board with that at all.
9/14/2015 2:17 PM

**Q13**

## If a new "standard level" of service that was offered in addition to the service mentioned

## in the last question were made available that provided exceptionally fast Internet access and reliable 24 hour service with speeds up to 250 Mbps download and 250 Mbps upload at a cost of less than $ 50 dollars per month, would you be...

Answered: 169 Skipped: 19

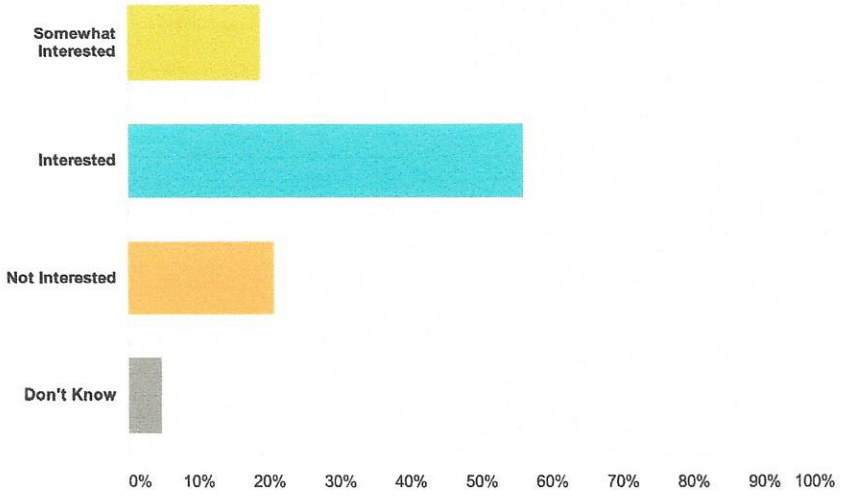



| Answer Choices | Responses | |
|---|---|---|
| **Somewhat Interested** | **13.61%** | 23 |
| **Interested** | **78.11%** | 132 |
| **Not interested** | **4.14%** | 7 |
| **Don't Know** | **4.14%** | 7 |
| Total | | 169 |

Q14

## If a new "premium level" of service became available that was offered in addition to the two services mentioned earlier that provided exceedingly fast Internet access and reliable 24 hour service with speeds up to 1000 Mbps download and 1000 Mbps upload at a cost of less the $70 dollars per month, would you be...

Answered: 170 Skipped: 18




| Answer Choices | Responses | |
|---|---|---|
| **Somewhat Interested** | **18.82%** | 32 |
| **Interested** | **55.88%** | 95 |
| **Not Interested** | **20.59%** | 35 |
| **Don't Know** | **4.71%** | 8 |
| Total | | 170 |

**Q15**

## For the services mentioned in the last two questions, what would you find as "fair or reasonable" for a one time installation cost of bringing that service to your home? This would include any wiring and work needed to bring the connection directly to your computer.

**Answered: 153 Skipped: 35**

$0
9/16/2015 5:18 PM

free
9/16/2015 8:12 AM

$1.00
9/16/2015 7:17 AM

should be free
9/15/2015 2:56 PM

$100
9/15/2015 8:12 AM

$10 to $20 I will be paying them a fee every month to use
9/15/2015 7:28 AM

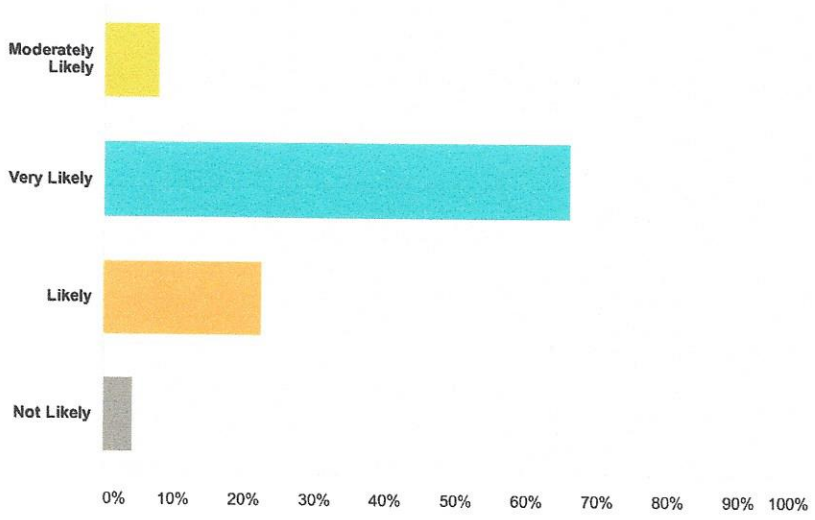
$50
9/14/2015 8:41 PM

**Q16**

## If affordable, fast and reliable Internet services like those described in the previous questions were offered, please

## rate your likelihood to switch to one of those services if it becomes available at your home. Would you be...

Answered: 170 Skipped: 18




| Answer Choices | Responses | |
|---|---|---|
| **Moderately Likely** | **7.65%** | 13 |
| **Very Likely** | **65.88%** | 112 |
| **Likely** | **22.35%** | 38 |
| **Not Likely** | **4.12%** | 7 |
| Total | | 170 |

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# APPENDIX F

# COMPILED SURVEY RESULTS

| | Phone Survey Results | | Survey Monkey Results | | Total | |
|---|---|---|---|---|---|---|
| 2. Number of people with internet | | | | | | |
| Number of Responses | 199 | | 178 | | 377 | |
| Dial Up | 3 | | Not Specified | | 1.51% | |
| DSL from Phone Company | 34 | | Not Specified | | 17.09% | |
| Wireless | 27 | | Not Specified | | 13.57% | |
| Other Type | 19 | | Not Specified | | 9.55% | |
| Cable Internet | 107 | | Not Specified | | 53.77% | |
| 3. Internet Provider | | | | | | |
| Number of Responses | 199 | | 178 | | 377 | |
| Comcast | 114 | | 116 | | 230 | |
| Fairpoint | 43 | | 36 | | 79 | |
| AT&T | 8 | | 1 | | 9 | |
| Sprint | 6 | | 0 | | 6 | |
| Verizon | 4 | | 5 | | 9 | |
| T Mobile | 3 | | 1 | | 4 | |
| Bell South | 1 | | 0 | | 1 | |
| Boost Mobile | 1 | | 0 | | 1 | |
| Cell Phone | 1 | | 0 | | 1 | |
| Charter | 1 | | 0 | | 1 | |
| Clear | 1 | | 0 | | 1 | |
| Hotbox Verizon | 1 | | 0 | | 1 | |
| Other | 1 | | 2 | | 3 | |
| Satellite | 1 | | 1 | | 2 | |
| Time Warner | 1 | | 0 | | 1 | |
| Viasat | 1 | | 0 | | 1 | |
| None | 6 | | 4 | | 10 | |
| Don't Know | 4 | | 0 | | 4 | |
| N/A | 1 | | 0 | | 1 | |
| 5. & 6. Internet Speeds (General) | | | | | | |
| Number of Responses | 199 | | 176 | | 375 | |
| Very Fast | 12.10% | 24 | 7.40% | 13.02 | 9.89% | |
| Fast | 39.70% | 79 | 50.60% | 89.06 | 44.82% | |
| Not Very Fast | 25.10% | 50 | 23.90% | 42.06 | 24.54% | |
| Kind of Slow | 10.60% | 21 | 5.70% | 10.03 | 8.30% | |
| Slow | 3.50% | 7 | 5.10% | 8.98 | 4.25% | |
| Very Slow | 2.00% | 4 | 6.30% | 11.09 | 4.02% | |
| Don't Know | 7.00% | 14 | 1.10% | 1.94 | 4.23% | |
| Internet Speeds (Specific Download) | | | | | | |
| Number of Responses | 199 | | 172 | | 371 | |
| Less than 1.5 Megs | 5 | | 6 | | 11 | |

| | Phone Survey Results | | Survey Monkey Results | | Total | |
|---|---|---|---|---|---|---|
| 3 Megs | 6 | | 15 | | 21 | |
| 5 Megs | 13 | | 20 | | 33 | |
| 10 Megs | 17 | | 22 | | 39 | |
| Don't Know | 138 | | 76 | | 214 | |
| Other | 20 | | 33 | | 53 | |
| 7. Internet Speeds (Changes Desired by Sample) | | | | | | |
| Number of Responses | 199 | | 177 | | 376 | |
| Slower | 1 | | 0 | | 1 | |
| No Change | 33 | | 14 | | 47 | |
| Faster | 99 | | 66 | | 165 | |
| Much Faster | 57 | | 96 | | 153 | |
| Don't Know | 9 | | 1 | | 10 | |
| 12. What Should Peculiar's Role be in this Project? | | | | | | |
| Number of Responses | 199 | | 161 | | 360 | |
| A) The City should only solicit interest from private companies. The City should NOT be involved in any way with broadband service. | 45 | | 51 | | 26.67% | |
| B) The City should implement a broadband network and operate it like a City Utility similar to the water and sewer utility. | 26 | | 27 | | 14.72% | |
| C) The City should consider partnering with private companies; such as maybe the City facilitating the construction of the physical network but having a private company operate the system. | 55 | | 72 | | 35.28% | 50.00% |
| D) The City should play no role in bringing broadband to the city. | 73 | | 11 | | 23.33% | |
| 12a. If you answered A) to the question above, and the City solicited private companies to implement the broadband network only to find that no private companies were interested, would you change your answer to the above question? | | | | | | |
| Number of Responses | 47 | | 62 | | 109 | |
| Yes | 21 | | 27 | | 44.04% | |
| No | 16 | | 22 | | 34.86% | |

| | Phone Survey Results | | Survey Monkey Results | | Total | |
|---|---|---|---|---|---|---|
| Don't Know | 10 | | 11 | | 19.27% | |
| 13. If a new "standard level" of service that was offered in addition to the service mentioned in the last question were made available that provided exceptionally fast Internet access and reliable 24 hour service with speeds up to 250 Mbps download and 250 Mbps upload at a cost of less than $ 50 dollars per month, would you be... | | | | | | |
| Number of Responses | 199 | | 165 | | 364 | |
| Somewhat Interested | 54 | | 22 | | 20.88% | |
| Interested | 114 | | 130 | | 67.03% | 87.91% |
| Not interested | 8 | | 7 | | 4.12% | |
| Don't Know | 23 | | 6 | | 7.97% | |
| 14. If a new "premium level" of service became available that was offered in addition to the two services mentioned earlier that provided exceedingly fast Internet access and reliable 24 hour service with speeds up to 1000 Mbps download and 1000 Mbps upload at a cost of less the $70 dollars per month, would you be... | | | | | | |
| Number of Responses | 199 | | 166 | | 365 | |
| Somewhat Interested | 40 | | 31 | | 19.45% | |
| Interested | 77 | | 95 | | 47.12% | 66.58% |
| Not interested | 58 | | 32 | | 24.66% | |
| Don't Know | 24 | | 8 | | 8.77% | |
| 16. If affordable, fast and reliable Internet services were offered, please rate your likelihood to switch to one of those services if it becomes available at your home. Would you be... | | | | | | |
| Number of Responses | 199 | | 166 | | 365 | |
| Moderately Likely | 35 | | 13 | | 13.33% | |
| Very Likely | 60 | | 110 | | 47.22% | |
| Likely | 66 | | 37 | | 28.61% | 89.17% |
| Not Likely | 13 | | 6 | | 5.28% | |
| Don't Know | 25 | | 0 | | 6.94% | |

# APPENDIX G

# SURVEY QUESTIONNAIRE

# City of Peculiar Broadband Initiative

## Customer Survey

**Introduction**

***The City of Peculiar is considering bringing high speed internet broadband service to the community. In order to determine the community's level of interest in such an effort and the proper role of the city in implementing such a project, the city is performing the following survey. Your cooperation is appreciated and your input is critical to this process.***

1. First, may I ask if you or anyone living in your household currently has a computer?

*1a. You answered NO to the question of anyone in your household having a computer. May I ask if you or anyone in your household intends to purchase a computer in the next 6 months?*

2. Can you tell me if you have access to the Internet at your home? Do you have a connection through either dial up, DSL, Wireless or some other source that you use to access the Internet from your home?

*2a. You answered that you "do not" currently have Internet access at your home. If a fast and affordable Internet service were available at prices you felt were fair, would you be willing to consider it for you and the members of your family? Please rate your interest on a scale of 1 to 5, with 1 being the most interested and 5 being the least interested.*

3. You answered YES to having access to the Internet at your home; can you tell me who the current Internet provider at your home is?

4. Now I would like to ask you some questions about your current Internet provider. Can you tell me about how much you pay for Internet service per month?

5. Now I would like to ask you some questions about the speed of the Internet service provided by your current provider. Would you say that your current Internet connection is...

   a) Very fast
   b) Fast
   c) Not very fast
   d) Kind of slow
   e) Slow
   f) Very slow
   g) Don't know

6. If I asked you the actual download speed of your current Internet connection, would you have any idea? Some examples of common speeds are:

a) Less than 1.5Megs
b) 3 Megs
c) 5Megs
d) 10 Megs
e) Other
f) No idea

7. If you had a choice, would you want your Internet connection to be...

a) Slower
b) The same as it is now
c) Faster
d) Much faster
e) Don't know

8. On a scale of 1 to 10, with 1 being the best and 10 being the worst, please rate your satisfaction with the COST of your current Internet service?

9. On a scale of 1 to 1 0, with 1 being the best and 10 being the worst, please rate your satisfaction with the SPEED and RELIABILITY of your current Internet service?

10. On a scale of 1 to 10, with 1 being the best and 10 being the worst, please rate your OVERALL SATISFACTION with your current Internet provider?

11. What would you say is the biggest shortcoming of your current Internet provider?

12. What role would you think best for the City of Peculiar to play in bringing high speed reliable broadband service to the community:

a) The City should only solicit interest from private companies. The City should not be involved in any way with broadband service.

b) The City should implement a broadband network and operate it like a City utility similar to the water and sewer utility.

c) The City should consider partnering with private companies such as maybe the City facilitating the construction of the physical network but having a private company operate the system.

d) The City should play no role in bringing broadband to the city.

*12 a. If you answered a) above and the City solicited private companies to implement the broadband network only to find that no private companies were interested would you change your answer to the above question.*

13. If a new "standard level" of service that was offered in addition to the service mentioned in the last question were made available that provided exceptionally fast Internet access and reliable 24 hour service with speeds up to 250 MPS download and 250 MPS upload at a cost of less than $ 50 dollars per month, would you be...

a) Somewhat interested
b) Interested
c) Not interested in receiving
d) Don't know

14. And finally, if a new "premium level" of service became available that was offered in addition to the two services mentioned earlier that provided exceedingly fast Internet access and reliable 24 hour service with speeds up to 1000 MPS download and 1000 MPS upload at a cost of less the $70 dollars per month, would you be...

a) Somewhat interested
b) Interested
c) Not interested in receiving
d) Don't know

15. For the services mentioned in the last two questions, what would you find as "fair" for a one time installation cost of bringing that service to your home? This would include and wiring and work needed to bring the connection directly to your computer.

16. If affordable, fast and reliable Internet services like those described in the previous questions were offered, please rate your likelihood to switch to one of those services if it becomes available at your home. Would you be...

a) Moderately likely
b) Likely
c) Very likely
d) Not likely at all
e) Don't know

# APPENDIX H

# DRAFT REQUEST FOR PROPSAL

[Draft]

# City of Peculiar Request for Proposal for Municipal Fiber Broadband Provisioning Project

## 1. Introduction

### 1.1 Network Background

The Requesting Entity (RE) is requesting proposals from Vendors to build, manage and operate a next generation communications network ("Network") that will provide next generation Internet access service to businesses, homes, and community institutions within the Service Area. A baseline of 1 Gbps symmetric service possibly as afforded by GPON or Gig EPON, may serve as the definition of "next generation" service for this RFP. The RE will provide a variety of forms of support, including (but not necessarily limited to): (i) assistance in demand aggregation; (ii) long-term contracts and support for development of high bandwidth applications to drive adoption; (iii) marketing assistance (including working directly with Vendors, local business leaders and community leaders to increase the revenue opportunities and lower the costs associated with constructing and operating the Network); and (iv) collaboration with local Research, health care and education networks.

The RE prefers and "open access" network but will consider proposals for "closed access" applications. By open access, the RE means that the Network facilitates competition through reasonable and non-discriminatory access arrangements that (i) ensure equivalence of price and non-price terms and conditions for all retail services providers and (ii) permit such providers to differentiate their product offerings. In addition, the Vendor must not limit the ability of retail service providers or their customers to run applications, use services and connect devices of their choice to the Network. The selected Vendor will operate the Network on a wholesale basis, and it may, but need not, provide vertically integrated retail services. However, if it chooses to do so, it will have to implement the open access requirement to ensure that retail services competitors will be given treatment equal to that it provides to itself.

The Vendor will bear all of the costs for the Network, including but not limited to design, engineering, construction, equipment and insurance for the Network, up to the end user drop point or network interface device. In addition, the Vendor will bear all the operating and maintenance costs of the Network. In addition, Vendor should demonstrate a clear upgrade path for the Network to meet future consumer demand and service developments to at least 2023 and preferably beyond.

The RE intends the Network to serve as a development platform for innovation, next generation application development, workforce development and job creation

throughout the Service Area, including potentially into surrounding communities on a contract basis.

### 1.2 Nature of Entities Issuing RFP

This RFP is issued by the City of Peculiar.

### 1.3 Overview

This RFP seeks proposals for the deployment and operation by Vendor of an existing high-speed fiber network for use of the citizens and businesses in the Service Area. The objectives are to establish a Network that:

1. Initially is able to offer a 250 Mbps retail broadband services that is upgradable to 1 Gbps; is also able to support high quality voice and video services at a possible future date;
2. uses fiber-to-the-premises network architecture;
3. covers all of homes and small businesses in the Areas which demonstrate at least a 65% subscription rate.
4. is rolled out and made operational progressively, on a demand driven basis, over no more than 2 years from the date of execution of a contract between the RE and the Vendor;
5. promotes the long term economic and community interests of the RE and end users;
6. facilitates competition through open access arrangements;
7. enables low wholesale access prices that reflect underlying costs while allowing Vendor and RE to earn a rate of return on their investment commensurate with the risks involved; and
8. facilitates opportunities for small, medium and large enterprises (SMLEs) and local enterprises to provide services to the Network and to the community.

### 1.4 Assets, Facilities, Services to be Contributed by RE

RE will provide Vendor with access to the assets, services and infrastructure of RE identified in Sections 1.4.1-1.5 below, to the extent they are available and are needed for deployment of the Network. Infrastructure may include, but not necessarily limited to; facilities, rights-of-way, central office or switch locations, available land, and other assets and services identified below.

RE will use its best efforts to make such assets, services and facilities available to Vendor upon request, on commercially reasonable terms. The existing charges for access to or use of any RE facilities to be provided for this Network, and any permit and inspection fees be imposed by RE, are as set forth in Schedule 1.4.

In certain cases identified in the appropriate Schedule, access to rights of way or other assets identified may be conditioned on or require approval from lessors

or other third parties. In such situations, the RE will work with the Vendor to attempt to obtain any necessary approvals, but it cannot guarantee their receipt.

**1.4.1 Rights of Way**

Construction and the installation of equipment in RE rights of way will be subject to an Agreement and engineering permits issued by RE. Subject to existing rights- of way and easements, RE will allow Vendor to have access to necessary rights-of-way on property owned by RE and property on which it has an easement. Such access will be provided during regular business hours for non-emergency work and 24x7 for emergency work. This access includes permission to perform construction work on RE property, including construction in the streets as needed for the Network.

RE will also cooperate with Vendor in efforts to allow Vendor to gain access to rights-of-way owned or controlled by third parties within the Service Area.

**1.4.3 Space and power**

RE will make space available to Vendor in RE facilities for the installation of central office ("CO") equipment and for additional network facilities, in locations to be determined as part of the network design. In addition, RE will provide electrical power necessary for Vendor's equipment at RE locations. RE will charge Vendor market rates for such space, power or related services.

**1.4.7 RE Contracts for Services and Assistance in Identifying and Generating** Institutional and Enterprise Demand

The RE is willing to negotiate long-term individual commitments to purchase network services needed for RE operations (e.g., transmission capacity, Internet access, voice, video, security monitoring, cloud computing and storage) through the Network.

RE will provide Vendor with assistance in identifying and contacting other entities in the Service Area that are candidates to enter into long term contracts (2 years or more) for fiber or network services. Such potential anchor tenants include other educational institutions, large employers and other enterprises.

**1.4.4 Retail Marketing Assistance**

The RE will assist Vendor's pre-construction efforts to market to and obtain commitments for Network services (primarily Internet access) from households and businesses in the Service Area.

**1.4.5 Other Assets, Facilities, Services**

The RE will provide Vendor with access to other assets and services that are owned or controlled by the RE, and that will assist Vendor in lowering the overall risk by reducing the cost structure and shortening the design and construction schedule. These include:

- Access to existing utility data, street maps, maps of terrain, GPS coordinates and locating services. *RE will provide 1" = 200' scale artho corrected Photography with all rights-of-way and existing utility locations shown.*
- Access to other communications networks through existing peering and traffic exchange agreements

**1.5 Regulatory and Other Forms of Assistance to be provided by RE**

RE will provide Vendor with access to:

- Assistance from RE FTE employees for planning, network mgmt., etc.
- A single point of contact ("SPOC") for Vendor, which SPOC will be Responsible for addressing all issues related to the Network, providing coordination across RE departments, ensuring the full cooperation of all RE departments with Respect to relevant issues on the Network and serving as a communications and troubleshooting Resource for Vendor.

### 1.5.1 Expedited Permitting

RE will provide Vendor with quick, diligent review of all applications for permits, including permits necessary for construction work on the Network within RE rights-of-way and in connection with RE assets or infrastructure. This includes a commitment to review and Respond to any subsequent modifications or similar documents that may require approval by RE within seven (7) working days of submission by Vendor.

### 1.5.2 Expedited Inspection

RE will provide Vendor with a dedicated inspection team for inspection of all work performed on the Network.

### 1.5.3 Financing

RE will provide Vendor with information about existing funds, grants and contracts that can be redirected to this program. RE will also apply for or provide assistance in applying for available grants or loans to defray Network expenses, such as those for local economic development.

*As an alternative financing resource RE agrees to consider proposals based upon RE's financing of the infrastructure using tax exempt municipal bonds. Proposers should base such proposals on 4% interest, 1.25 coverage test, and a 20 year amortization period. All assets funded in this manner will remain the property and sole ownership of the RE.*

### 1.6 Relationship between Vendor and RE

The Vendor will be an independent contractor that provides all design, construction and operation services for the Network.

### 1.6.1 Ownership of Network

The RE will own the Network if financing is provided by the RE.

## 2. Services Sought

### 2.1 Description of Services Sought

The RE seek a Vendor to design, build, install, own, operate and manage a complete turnkey high-speed communications Network within the Service Area. The system shall be a fully operational high speed communications network using Internet protocol technology and allowing users access to and from the Internet and access to other services as required. The RFP does not require a specific technology, but the RE expect that most potential vendors will propose Fiber-to-the-home Active E, GPON, EPON, RFoG, WDM/PON or any other such acceptable technologies to provide gigabit service to households, businesses and institutions throughout the Service Area. This system must include all active and passive infrastructure, including fiber cabling, active repeater equipment, uninterruptible power supplies, network cross-connections, software, ancillary equipment, and ongoing main tenancy.

Services rendered must include complete system design, engineering, operation, monitoring, maintenance, and enhancement, as well as negotiation and execution of access agreements with retail services providers. The Network rollout will be based upon demonstrated demand by community Residents and businesses, and the availability of necessary infrastructure. The Network design and operation must provide an open access framework that maximizes wholesale and retail service delivery and competition.

The following is a specific example of an acceptable project description:

A bi-directional FTTH (Fiber To The Home) network using EPON (Ethernet Passive Optical Network), GPON or RFoG electronics to allow Sebewaing Light & Water to transport broadband services to their service area. The network will be designed to initially transport high speed data services and will also be designed to include voice and video services as well, at a later date to be determined in the City's sole discretion. Our initial recommendation is to use EPON.

The scope of the project includes approximately 1500 passings using 47 miles of fiber optic network.

The size of the digital service provisioned to support the network will be determined by the network's demand. The actual optical service ties between the office and optical distribution cabinets located at each hub will be a 10 GigE.

From the Headend or each Hub a fiber network using the distributed tap architecture will be designed to serve the area.

Fiber routes will be laid out logically to economically connect each service group back to the Optical Distribution cabinet located at the Headend or each Hub. Network architecture will be a star design with the possibility to ring the network in the future. There will be four distinct fibers designated to each Hub plus additional fibers as needed to allow for growth and business opportunities. As in a typical fiber network design there will be one fiber designated for each group of 32 passings plus spares. There may be other services or network fibers added to this number when finalizing the network design.

Although the optical link budgets and electronics are identical to a typical fiber network build, the network will not employ 1:32 splitters but will use a design distributing optical taps throughout the serving area enabling the overall average fiber count to be reduced, allowing for less up front capital and efficient longer term maintenance. This will allow each drop to be connectorized simplifying the installation process and result in a more efficient overall cost per mile.

Penetration is modeled at 65% of the homes passed for internet service.

The Optical Network Terminal will be capable of providing video, ethernet and telephone connections.

### 2.2 Scope of work

Vendor shall design, build, install, operate and manage the Network. The Network shall have the following features and functionality.

Network Requirements

Vendor's response shall identify the specific network characteristics it plans for

- Minimum capacity (in terms of number of fibers and/or bandwidth capacity) for (i) the backbone or metropolitan area ring, (ii) residential users, (iii) enterprises/institutional users, (iv) government institutions/public safety users

Services on Wholesale Open Network

- Development and implementation of open access structure for wholesale and retail service delivery and competition
- Bandwidth and technology gateway with caching for access to cloud based triple play and over-the-top (OTT) services (online delivery of video and audio content)
- Wholesale billing and settlement services
- Wholesale Internet access service
- Physical and logical layer network service access
- Dedicated wave/VLAN services
- Secure IP intranet services

Public Safety Services

- Dedicated public safety service network
- Secure public safety access
- Public infrastructure monitoring (e.g., smart water meter reading, SCADA system for water and sewer utility on other public structures)

### 2.3 Reponses to Scope of Work

Each potential vendor shall submit a business and technical plan describing its approach to the project described in this RFP. The business plan shall describe the Vendor's approach to design, construction, operation and management of the Network and the services to be provided over the Network in sufficient detail to allow the RE to effectively consider the proposal. The Vendor shall also include a description of the day- to-day operations and the management of all responsibilities related to the project and explain how the Vendor will fulfill the scope of work in Section 2.2. This should include, at a minimum, the following:

- Technology: A description of the network technologies underlying the proposed network solution(s) included in the response. Each description should include the following information:
  - Technologies proposed and the limitations of each technology, and if a variety of technologies are contemplated, a discussion of the factors likely to influence the choice of technologies;
  - As much detail as possible regarding the network design including, but not limited to: network design criteria, network elements, architecture, protocols, system reliability, availability, and operations and maintenance; and
  - Network performance characteristics, including the range of offerings, the capacity and other factors relevant for each proposed solution.

- Serviceofferings: A description of proposed wholesale or retail service offerings that the Vendor anticipates offering to institutional, business and residential customers.
  - Broadband service offerings (type of broadband service, speed tiers, differences between business and residential offerings)
  - Ancillary service offerings (including those identified in Section 2.2) that may be provided by the Vendor
  - Pricing strategy
  - Explanation of Vendor's willingness to work with the RE to develop unique pricing or packages for key community stakeholders and populations (e.g., government, water and sewer facilities, K-12 facilities, public safety, economically distressed areas)

- Rolloutstrategy: A discussion of the anticipated deployment strategy, scope and timing of the proposed rollout. The discussion should identify the levels of committed demand necessary to trigger rollout obligations and any factors likely to influence the scope or timing of the rollout, and explain how those factors impact the strategy.

- Rolesandresponsibilities: A description of the roles and responsibilities envisioned for Vendor, Vendor team members (if any), RE, and third parties (if applicable) for each of the following:
  - Network design
  - Network construction
  - Network operations and management
  - Community outreach and customer acquisition

- FinancialProjections: The business plan should include a pro forma financial statement, identifying projected capital outlays, ongoing operational costs, and expected revenues from wholesale and retail services for at least the first ten years of construction and operation. The plan should identify and quantify all key assumptions underlying the calculations.

### 2.4 Vendor Qualifications

- Experience in high speed network design and operation – Vendor should provide a statement of experience highlighting similar network systems that it has designed, constructed and operated, including project name, location, size, technology used, and name and phone number for reference contacts. Also indicate whether each system is owned by the Vendor or another entity.

1. Financial Stability – Vendor shall submit its two most recent annual financial statements in order to permit analysis of its financial resources. If financial statements are unavailable due to confidentiality reasons, submit recent D&B reports. If Vendor is part of a team, the two most recent annual financial statements for each team member should be submitted. If the Vendor's response includes vendor financing or committed bank or other financing, the two most recent annual financial statements of such equipment vendors and financial institutions should be submitted. In addition, each Vendor or team shall provide a bond in the amount of $1,000,000 or as otherwise agreed to guarantee satisfactory completion of the project. Appropriate insurance shall also be provided by vendor and any subcontractors with 1st dollar limits of not less than $2,000,000 and naming the RE as an additional insured.

- Staff Technical and Managerial Experience – include a statement of experience and resumes of the project team, including the project manager and other key personnel who will be assigned to this project. Also include a list of any known or anticipated subcontractors along with their roles and responsibilities.
- Evidence of Legal Capacity – include copies of Vendor's most recent federal and State annual reports and current licenses to provide telecom/communications services, together with a certification that all Missouri business and regulatory registrations/filings/taxes are current, and all internal corporate documents are kept and up to date (e.g. meeting minutes, bylaws, etc.)

## 3. Administrative Issues

### 3.1 Availability of the RFP and Amendments

Adobe Acrobat (PDF) and Microsoft Word versions of this RFP are available on the City project website at: http://www.cityofpeculiar.com. Amendments to the RFP will be posted on the project website at: http://www.cityofpeculiar.com.
Any amendments supersede prior provisions and are effective upon posting on the project website, and each potential bidder is responsible for checking the website to learn of any amendments.

### 3.2 Questions about the RFP

The primary RFP contact for the RE project team isGary M. Lee P.E.
All general correspondence and any questions about this RFP must be submitted in writing at glee@uam-llc.com. The RE project team will entertain oral contacts regarding this RFP. The last date for questions will be 5:00 pm Eastern Time on _____, 2015. All questions will be considered to be public and released with an answer at https://www.cityofpeculiar.com as expeditiously as possible. The identity of the person posing the question will not be disclosed.

Vendors should not contact any RE staff member directly. Any attempts to contact RE staff regarding this RFP other than via this email process may be grounds for the RE to reject your submission.

### 3.3 Additional Material

Vendors are encouraged to review any additional materials and updates that may be provided prior to submitting their proposals at the project website noted above.

### 3.4 Informational Session

There will be an informational session for potential Vendors on _____, 2015 from 10:00am to 11:00am at *City of Peculiar, City Hall, 250 Main St., Peculiar, Mo., 64701.*

### 3.5 Proposal Format and Certification

Proposals should be organized with responses referencing the appropriate corresponding RFP item(s). Vendors should respond to each item at the level of detail at which each is presented or list a variance with a particular item and propose alternate terms and, as applicable, and supply any supportive detail. Proposals not conforming to the proper format or failure to respond to any required items may result in a Vendor's disqualification and/or rejection of the proposal. Where the Vendor is requested to supply information, include that information in the body of the proposal, or reference the attachment where it is included.

A duly authorized officer or agent of the Vendor must sign the proposal. Proposals that are not signed will not be considered. In the case where multiple vendors team to present a proposal, a signature by a duly authorized officer or agent of each entity is required on the proposal, though one entity should be designated the lead entity in the proposal. The lead entity will be the contracting Vendor and will be responsible for subcontracting with its partners.

### 3.6 Project Calendar

Anticipated Event Dates

- RFP Advertised and issued: _____, 2015

- Proposals Due: _____, 2015
- Proposal Evaluation Completed by: _____, 2015
- Interviews with finalist firms no later than: _____, 2015
- Award and Letter of Intent for Contract no later than: _____, 2015
- Selected firm begins work no later than: _____, 2015
- Contract finalized no later than: _____, 2015
- First progress report due: _____, 2015

**3.7 Proposals Due Date and Submission**

Proposals are due by 5 p.m. local time on _____, 2015. Proposals received after the deadline will not be considered. Proposals must be submitted electronically or via priority or certified mail. Two (2) hard copies and one (1) complete electronic version are required for any proposal submitted in hard copy format. Faxed proposals will not be accepted. Vendors assume the risk of the methods of dispatch or delivery chosen. Office hours for receipt of mailed or expressed proposals are: Monday through Friday, 8:00 am - 5:00 pm (EDT).

Electronic proposals must be submitted by email to _____@cityofpeculiar.com. All electronic files must be submitted in editable format in order to facilitate evaluation and planning. Word, Excel, GIS and PDF formats are acceptable.

3.8 Process and Criteria for Evaluation of Proposals

Proposals will be opened and reviewed internally at the convenience of the RE. All proposals will be evaluated and, at RE sole discretion, an award, if any, made to the Vendor who demonstrates the best ability to meet the overall goals of the project, with particular emphasis on the ability to fulfill the scope of work in the most timely and efficient manner.

Some of the Qualifications Evaluation Criteria Include but are not limited to:

Quality of response
Upfront investment by vendor
Experience of project team
References
Vendor experience
Financial strength of Vendor
Feasibility of Vendor financial proposal

3.9 Clarification of Proposals

Notwithstanding any other provision of this RFP, RE reserves the right to:

1. Initiate discussions with any or all potential vendors for the purpose of clarification of proposals;
2. Waive, or decline to waive, any defect in any proposal;

3. Accept, reject, or negotiate any or all proposals or the terms of any proposal, or any parts thereof, for the purpose of obtaining the best and final offer;
4. Cancel or amend this RFP or issue other requests for proposals;
5. Select a Vendor or Vendors based solely upon its analysis and evaluation of proposals submitted and request presentations on proposals if it believes further information is appropriate to the decision-making process;
6. Select no proposals at all; or
7. Use any and all concepts presented in any proposal to obtain the most beneficial and effective path to achieving its desired goals for the project.

### 3.10 Negotiation and Execution of Contracts

The selected Vendor agrees to execute a contract consistent with the terms of this RFP as modified for the proposal specifics within 10 days of the award. If the parties are not able to reach agreement and execute a contract within ten (10) days of the award, the RE may declare the award void and may select another Vendor or issue a new RFP or proceed otherwise as it sees fit.

The negotiated contract will include a requirement for the Vendor to provide a bond (or other form of financial assurance) in order to ensure that the RE does not have to assume unanticipated costs of finishing the project. The purpose is to prevent the Vendor from "walking off the job."

### 3.11 Commencement of Work

The submission of a proposal in response to the RFP, and the subsequent evaluation of that response by the RE, does not constitute a contract or any type of agreement between the RE and any Vendor for the commencement of work or the performance of any obligation. Only a written contract with the RE will authorize the commencement of work or obligate the RE on this project.

### 3.12 Use of Subcontractors

Vendors may use RE approved subcontractors to fulfill any obligations in connection with the project. Use of subcontractors shall be subject to all applicable state and federal laws. A Vendor shall remain liable for fulfilling all its obligations on the project, and for any claims or damages arising from the subcontractor's work.

### 3.13 Miscellaneous Provisions

#### 3.13.1 Proposal Costs

Responding vendors are responsible for all expenses they incur in preparing and submitting a proposal or in contract negotiations with the RE. Even if it elects to reject all proposals, the RE will not be liable for any costs or damages incurred by any vendor in preparing and submitting a proposal.

### 3.13.2 Applicable Statutes

The RE is a public entity. As a Result, this RFP is subject to a variety of public procurement requirements, including but not limited to federal and state records disclosure statutes. Vendor is responsible for knowing all applicable federal, state and local laws and regulations and complying therewith.

### 3.13.3 Errors and Omission in a Proposal

The responding vendor is responsible for all errors and omissions in its proposal. If it discovers an error and wishes to withdraw its proposal, the responding vendor should notify the RE immediately. Depending on the stage of the process, the vendor may be liable for costs incurred by the RE in analyzing the proposal or negotiating a contract.

### 3.13.4 Errors and Omission in the RFP

If the RE becomes aware of an error or omission in the RFP, it will post a notice on the website. If it discovers an error or omission after the proposals are submitted, it may in its discretion proceed or reissue the RFP. Even if it elects to rebid the RFP, the RE will not be liable for any costs or damages incurred by any vendor in preparing and submitting the original proposal.

### 3.13.5 Objections to RFP Terms

Any objections to RFP terms must be conveyed in writing to mmccoy@sebewaing.net and must be submitted by the deadline for submission of questions about the RFP in Section 3.2 above.

### 3.13.6 Acceptance of RFP/Proposal Content

By submitting a proposal, a Vendor certifies that it has read, understood, and agreed to all requirements, terms, and conditions in this RFP, including any and all attachments, exhibits, and appendices. A Vendor may withdraw its proposal prior to the RFP response deadline.

### 3.13.7 No Waiver of RFP Provisions

The RE may, but is under no obligation to, waive any provision in this RFP at the request of a potential Vendor. Any such waiver shall apply to all potential bidders, and no waiver shall constitute a waiver of any provision not specifically referenced therein.

### 3.13.8 Ownership and Confidentiality of Proposals

The RE will not pay for any information requested herein, and all proposals submitted become the property of the RE. Proposals will not be returned and may be subject to disclosure pursuant to law including the federal or state Freedom of Information Act.

# APPENDIX I

# PROJECT CHECKLIST

Project Name: **City of Peculiar, Broadband System**

## PROCESSING CHECKLIST

| | | |
|---|---|---|
| Project Name:<br>City of Peculiar Broadband | Phone: | County:<br>Cass |
| Contact Person: | Alternate Contact Person: | Phone: |
| Project Description<br>City of Peculiar Broadband System | | Type Project: |
| City Administrator | | Phone: |
| Investment Banker<br>McLiney Company | | Phone: |
| Mailing Address: | | |
| Engineer:<br>Gary Lee, P.E. Universal Asset Management LLC | Address: 10401 Holmes Rd<br>KC, Mo 6413 | Phone:<br>816-887-4008 |
| Design Engineer: | Address: | Phone: |
| Attorney: | Address: | Phone: |
| Investment Banker/Financial Advisor: | Address: | Phone: |
| Finance Counsel: | Address: | Phone: |
| Contractor 1: | Address: | Phone: |
| Contractor 2: | Address: | Phone: |
| Contractor 3: | Address: | Phone: |
| Contractor 4: | Address: | Phone: |

**Key to Footnotes and Abbreviations:**

| | | |
|---|---|---|
| C | = | Project Sponsor |
| FA | = | Investment Banker/Financial Advisor |
| E | = | Engineer |
| FC | = | Finance Counsel |
| PA | = | Project Attorney |
| DB | = | Design Build Contractor |

Project Name: **City of Peculiar, Broadband System**

# PROCESSING CHECKLIST

| Item No. | Document or Action | | Responsible Party | Date Complete |
|---|---|---|---|---|
| 1 | Request for Proposal | | C-E | |
| 2 | Review of Proposals | | E | |
| 3 | Presentation of Proposals | | E | |
| 4 | Notice of Award | | C | |
| 5 | Negotiations | | C-E-DB | |
| 6 | Awardee authorizations | | | |
| 7 | a. City Clerk's certificate approving execution of Contract | | C | |
| 8 | Regulatory authorizations | | C | |
| 9 | Executing documents | | C-DB-PA | |
| 10 | Notice To Proceed | | C-PA | |
| 11 | Legal opinion | | PA | |
| 12 | File Documents | | C | |
| 13 | Environmental approvals | | | |
| 14 | a. U.S. Fish and Wildlife Services | | DB | |
| 15 | b. Section 106,Cultural Resource Survey | | DB | |
| 16 | Engineering agreement | | E | |
| 17 | Legal services agreement | | PA | |
| 18 | C.P.A. engagement letter | | A | |
| 19 | Rules and regulations | | E-PA-DB | |
| 20 | Evidence of acceptable accounting system and method of accounting to be used | | A | |

**Key to Footnotes and Abbreviations:**

| | | |
|---|---|---|
| C | = | Project Sponsor, City of Peculiar |
| FA | = | Investment Banker/Financial Advisor |
| E | = | Engineer |
| FC | = | Finance Counsel |
| PA | = | Project Attorney |
| DB | = | Design-Build-Operated Contractor |

Project Name: City of Peculiar, Broadband System

# PROCESSING CHECKLIST

| Item No. | Document or Action | | Responsible Party | Date Complete |
|---|---|---|---|---|
| 21 | Treasurers certification of funds | | C | |
| 22 | Service area map | | E-DB | |
| 23 | Rights-of-way/easement form | | E-PA | |
| 24 | User agreement form | | E-PA | |
| 25 | Utility Maps Completed In AutoCad | | E-C | |
| 26 | Contract documents and drawings | | DB | |
| 27 | Rights-of-way and title examinations | | | |
| 28 | a. Rights-of-way map (color coded and all real estate property noted) | | E | |
| 29 | b. Rights-of-way certificate (attached to map) | | E | |
| 30 | c. Rights-of-way opinion (attached to map) | | PA | |
| 31 | d. Owners title opinion for real estate sites | | PA | |
| 32 | Attorney's opinion on adequacy of insurance coverage, including property, liability, fire, flood, workers compensatory, auto, fidelity bond, equipment breakdown, etc. | | PA | |
| 33 | Financial model | | | |
| 34 | a. Capital budget | | DB | |
| 35 | b. Operations | | DB | |
| 36 | Project schedule | | DB | |
| 37 | User rates and charges agreed as per Design-Build-Operate Agreement | | C-DB | |
| 38 | Missouri Dept of Labor wage determination | | DB | |
| 39 | Contractor/equipment procurement | | DB | |
| 40 | Engineer's recommendation of award construction/equipment contracts | | E | |
| 41 | Final financial model | | | |
| 42 | a. Capital | | DB | |
| 43 | b. Operations | | DB | |
| 44 | Interest rate determination | | FA | |
| 45 | Bonds Sold (if required) | | FA-C | |
| 46 | Construction/equipment contracts attorney review | | PA | |
| 47 | Construction/equipment contracts executed | | C | |
| 48 | Subscriber Sign ups | | C-DB | |
| 49 | Notice to wage boards US/State | | E | |
| 50 | Pre-construction conference | | E | |
| 51 | Monthly reports/Daily Diary | | E | |
| 52 | Monthly reports reviewed with field representative | | E-C | |
| 53 | Record as-constructed drawings | | DB | |
| 54 | Engineer's final certifications | | E | |
| 55 | Establish billing system | | E-A-DB | |
| 56 | Establish customer care system | | E-C-DB | |
| 57 | Establish maintenance system | | E | |
| 58 | Asset management program | | | |
| 59 | a. Preventive maintenance | | E | |
| 60 | b. Corrective maintenance | | E | |
| 61 | Management Agreement | | C-E-PA-DB | |

**Key to Footnotes and Abbreviations:**

| | | |
|---|---|---|
| C | = | Project Sponsor, City of Peculiar |
| FA | = | Investment Banker/Financial Advisor |
| E | = | Engineer |
| FC | = | Finance Counsel |
| PA | = | Project Attorney |
| DB | = | Design-Build-Operated Contractor |

**RESOLUTION NO. 2015-62**

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**A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI, APPROVING AND ACCEPTING THE BUSINESS PLAN FOR MUNICIPAL BROADBAND AND ENTERPRISE OF THE CITY OF PECULIAR, MISSOURI PREPARED BY UNIVERSAL ASSET MANAGEMENT, LLC.**

**WHEREAS,** City staff issued a Request for Qualifications for the Fiber-to-the-Home project, and

**WHEREAS,** two (2) firms submitted qualifications for the Fiber-to-the-Home project, and

**WHEREAS,** Universal Asset Management, LLC was selected by City staff for the Fiber to the Home project.

---

**NOW THEREFORE,** be it ordained by the Board of Aldermen of the City of Peculiar, Missouri as follows:

THE BUSINESS PLAN FOR MUNICIPAL BROADBAND AND ENTERPRISE OF THE CITY OF PECULIAR, MISSOURI PREPARED BY UNIVERSAL ASSET MANAGEMENT, LLC.

Section 1. That the Mayor is hereby authorized to execute on behalf of the City of Peculiar the above referenced RESOLUTION and the Business Plan.

Section 2. the effective date of the resolution shall be _____.

BE IT REMEMBERED THE PRECEDING RESOLUTION WAS ADOPTED ON THIS _____ DAY OF _____, 2015, BY THE FOLLOWING VOTE:

| | | | |
|---|---|---|---|
| Alderman Ford | ____ | Alderman Ray | ____ |
| Alderman Hammack | ____ | Alderman Roberts | ____ |
| Alderman McCrea | ____ | Alderman Turner | ____ |

APPROVED: ATTEST:

_____ _____

Holly Stark, Mayor Janet Burlingame, City Clerk

**City Administrator**
*Brad Ratliff*

**City Clerk**
*Janet Burlingame*

**City Engineer**
*Carl Brooks*

**Business Office**
*Trudy Prickett*

**Chief of Police**
*Harry Gurin*

**City Planner**
*Cliff McDonald*

**City Attorney**
*Reid Holbrook*

**Parks Director**
*Grant Purkey*

Municipal Offices – 250 S. Main Street, Peculiar, MO 64078
Phone: (816)779-5212 Facsimile: (816)779-1004

**To:** Mayor and Board of Aldermen
**From:** Carl Brooks, City Engineer (cbrooks@cityofpeculiar.com)
**Date:** December 7, 2015
**Re:** Project No. STP -9900 (491) Peculiar Monument Sign

## GENERAL INFORMATION

**Applicant:** City Staff
**Requested Actions:** Approval of Resolution
**Date of Application:** December 3, 2015
**Purpose:** Enter into Agreement with TWC Construction
**Property Location:** Bradley's Crossing Lot 6B – Visible from I-49

## PROPOSAL

Staff proposes that the Board of Aldermen approve a resolution authorizing the Mayor to execute an agreement with TWC Construction for *Installation of the Peculiar Monument Sign Lighting Project* along N. Main Street Lot 6B in Bradley's Crossing Parkway.

## PREVIOUS ACTIONS

As you may be aware, the City received a federal grant through MoDOT reimbursable to the city up to $92,000.

The initial MoDOT Transportation Enhancement Funds program agreement between the Commission and the City executed on November 27, 2007, was for the Commission to not provide more than $92,000.

Based on the "80/20" percent match by the City, then the City would be responsible for the first $23,000 over the $92, 000; and everything else above $115,000. The current FY 2015-2016 budget is $115,000 for engineering and construction of the monument sign.

City staff, MoDOT and the landscape architect (Landplan) advertised the project on May 28th, issued two addendums and accepted bids on June 18, 2015. We received one bid from Gunter Construction Company. The bid include the base bid of the monument sign and two additive alternatives, one for tree landscaping and one for a waterline.

The Mayor and the BOA awarded the bae bid to Gunter Construction in the amount of $113,095.50 for the Peculiar Monument Sign project. Two (2) Change Orders for the project have been processed in a total deductive amount of $15,416.60.

Landscaping has been purchased and installed by City staff in the amount of $1,850.00.
The one (1) inch water main was installed by another contractor in the amount of $6,802.55 and paid for with the Enterprise Fund.
The landscape architect's (Landplan Engineering) fee was $20,079.74.

The total project cost to date is:

| | | |
|---|---|---|
| 1) | Engineering | $20,079.74 |
| 2) | Construction of the Monument Sign | $97,678.90 |
| 3) | One-Inch water main | $ 6,802.55 (not included in the total below) |
| 4) | Landscaping | $ 1, 850.00 |
| Total | | $119,608.64 |

## KEY ISSUES

City staff received three (3) bids for the lighting of the Peculiar Monument Sign project. The bids ranged from $17,965.00 to $29,533.00.

Since the original monument budget has been exceeded, City staff has the following options regarding the lighting of the Monument Sign:

1) Do nothing.
2) Reject the three bids.
3) Re-bid the project.
4) Award the lighting project to TWC Construction, and use other Capital Improvement funds to fund the difference between our budget and the amount of the award to TWC Construction.

   TWC Construction has submitted the base bid in the amount of $24,987.32, and for the comparable alternative light fixtures bid in the amount of $18,947.00.

   The intent of the bidding procedure was to determine the value of the lighting project based as a standalone project. City staff would prefer to award the lighting contractor to TWC Construction in the amount of $18,947.00 with additional funding from the Capital Improvement Fund Streets in the amount of $24,000.00.

Therefore, in order to complete the Peculiar Monument Sign project as originally designed, we respectively request that City staff amended the FY 2015-16 budget for an additional $24,000.00 from the Capital Improvement Fund Street 30-30-81000.

## STAFF RECOMMENDATION

After consideration of the of the three (3) bids, City staff recommendations would be to award the project to TWC Construction. Their alternate bid is $18,947.00 and $982 more than the alternative bid that was submitted by Teague Electric. However, in keeping with the intent of our purchasing policy to award the project to a Cass County business, the purchasing policy allows City staff to make a recommendation to award to a higher bidder if the bid is within 5%, and TWC Construction's bid is within the five percent

City staffs' recommendation is that the comparable alternative light fixtures bid in the amount of $18,947.00 be awarded to TWC Construction for the Peculiar Monument Sign project.

## ATTACHMENTS

Bid Tab
Resolution

# Federal Project Bid No. STP-9900 (491)

| | ITEM | ENGINEERS ESTIMATE | Harrisonville Electric | Teague Electric | | TWC Construction | |
|---|---|---|---|---|---|---|---|
| | | TOTAL PR | TOTAL PR | Bid Bond | TOTAL PR | Bid Bond | TOTAL PR |
| | | | | Yes | | | |
| 1 | **Base Bid** | $25,000.00 | $29,533.00 | | $0.00 | | $24,987.32 |
| | | | | Yes | | | |
| | | | | Yes | | | |
| | **TOTAL BASE BID:** | $25,000.00 | $29,533.00 | | $0.00 | | $24,987.32 |
| | Comparable Alternative Bid | 0 | $26,533.00 | | $ 17,965.00 | | $ 18,947.00 |
| | | $0.00 | | | | | |
| | Total Project Estimate | $25,000.00 | | | | | |

**RESOLUTION 2015-63**

**A RESOLUTION OF THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI AUTHORIZING THE MAYOR TO EXECUTE A CONTRACT WITH TWC CONSTRUCTION FOR INSTALLATION OF THE PECULIAR MONUMENT SIGN LIGHT FIXTURES ALONG N. MAIN STREET IN BRADLEY'S CROSSING LOT 6B FOR THE CITY OF PECULIAR, MO**

**WHEREAS,** the City of Peculiar has constructed the Peculiar Monument Sign along N. Main Street in Bradley's Crossing Lot 6B adjacent to I-49 and within the city limits of Peculiar, and

**WHEREAS,** the City of Peculiar has received a grant in an amount not to exceed $92,000 for the design and construction of the Peculiar Monument Sign project, and

**WHEREAS,** the City of Peculiar staff has worked directly with the MoDOT Central Office and local office personnel on this project, and

**WHEREAS,** an amendment to the Fiscal Year 2015-2016 budget will be necessary to fund the entire Peculiar Monument Sign Light Fixture project

**NOW, THEREFORE BE IT RESOLVED BY THE BOARD OF ALDERMEN OF THE CITY OF PECULIAR, MISSOURI**

**Section 1.** The Mayor is authorized to execute a contract with TWC Construction for the installation of the Peculiar Monument Sign Light Fixtures.

**Section 2.** The amount of the award to TWC Construction is in the amount of $18,947.00 for the Peculiar Monument Sign Light Fixtures.

**Section 3.** The Board of Aldermen authorizes an amendment to the Fiscal Year 2015-2016 budget in an amount not to exceed $14,000 for the purpose of utilizing funding from the Capital Improvement Street funds, for this Peculiar Monument Sign project.

**Section 5.** *Effective Date.* The effective date of this Resolution shall be the _____ day of _____ 2015.

Upon a roll call, said Resolution was adopted by the following vote:

| | | | |
|---|---|---|---|
| Alderman Hammack | ____ | Alderman Ray | ____ |
| Alderman Ford | ____ | Alderman Roberts | ____ |
| Alderman McCrea | ____ | Alderman Turner | ____ |

APPROVED:

_____
Holly Stark, Mayor

ATTEST:

_____
Janet Burlingame, City Clerk