146

Appendices

146
TEXAS

APPENDICES

SUPPLEMENTAL DATA CD

MICROSTATION DRAWING FILES

- Near-Term SH 146 Corridor Design File
- Near-Term Peripheral Intersection Design File
- Long-Term Intersection Design File
- East-West Connection Design File
- Near-Term SH 146 Corridor Sheet Files
- Near-Term Peripheral Intersection Sheet Files
- Crash Data SH 146 Corridor Design File

TRAFFIC DATA

- 24 Hour Counts
- Turning Movement Counts
- Crash Data

SYNCHRO OUTPUT

- Background (Existing) 2017 AM Peak Intersection LOS Results
- Background (Existing) 2017 PM Peak Intersection LOS Results
- Improved 2017 AM Peak Intersection LOS Results
- Improved 2017 PM Peak Intersection LOS Results
- Background 2025 AM Peak Intersection LOS Results
- Background 2025 PM Peak Intersection LOS Results
- Improved 2025 AM Peak Intersection LOS Results
- Improved 2025 PM Peak Intersection LOS Results
- Background 2035 AM Peak Intersection LOS Results
- Background 2035 PM Peak Intersection LOS Results
- Improved 2035 AM Peak Intersection LOS Results
- Improved 2035 PM Peak Intersection LOS Results

APPENDICES

1. PUBLIC INVOLVEMENT

Public Involvement Plan

Public Involvement Plan

State Highway 146 Sub-regional Study

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Introduction

The Houston-Galveston Area Council (H-GAC) is the federally designated Metropolitan Planning Organization (MPO) for the eight-county region in the Houston-Galveston area. The eight counties that comprise the MPO include Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties. The MPO is responsible for transportation planning and programming within this area.

In order to improve safety and mobility within the region, the MPO has and continues to commission access management and corridor studies on select thoroughfares. The intent of these studies is to investigate and identify safety and mobility issues and develop appropriate transportation management solutions to address the issues.

H-GAC, in conjunction with its consultant and planning partners, is conducting the State Highway 146 Subregional study. The purpose of this study is to identify short, intermediate, and long-term transportation improvements to increase safety and traffic flow, reduce congestion, improve air quality, incorporate multi-modal mobility solutions, and enhance the aesthetics of State Highway (SH) 146.

The study process follows federal and State procedures that call for collaborative development of transportation projects with citizens, local governments and affected agencies. Accordingly, a public involvement plan (PIP) is developed that identifies public involvement activities throughout the course of the study. The purpose of the PIP is to inform and involve citizens, other agencies, and local governments in the planning process and provide them with meaningful opportunities to influence and participate in the planning process. This is accomplished by providing complete information, timely public notice, opportunities for making comments, and ensuring full access to key decisions. This PIP has been developed, and will be continually updated, to ensure an effective public involvement process is maintained based on the following guiding principles:

- Providing continuous public access to study information as appropriate and opportunities for public input using a variety of outreach tools (e.g., website, newsletters, fliers, open houses, etc.)
- Providing comprehensive stakeholder outreach including educating key stakeholders, government officials and business leaders throughout the study
- Linking public involvement activities to study milestones, technical activities and decision making
- Documenting and maintaining, in a central location, a record of all communication received throughout the duration of the study
- Providing accommodations for those with special needs, or those who are traditionally underserved, to provide input into the overall process
- Reviewing the effectiveness of the PIP periodically to ensure information is being disseminated in an efficient and effective manner
- Conducting regular coordination meetings and public meetings with the lead agency, cooperating agencies and other stakeholder groups throughout the study

This PIP was developed to be consistent with the Houston-Galveston Area Council (H-GAC) Public Participation Plan and the Texas Department of Transportation's (TxDOT) public involvement process.

Study Area

The study limits of this approximately 10.2-mile corridor extend from the Chambers-Liberty County line to the intersection of SH 146 (a.k.a. Baytown Loop) and North Alexander Drive, and select existing and proposed arterial roadways adjacent to or that intersects SH 146. See the Study Area map below.

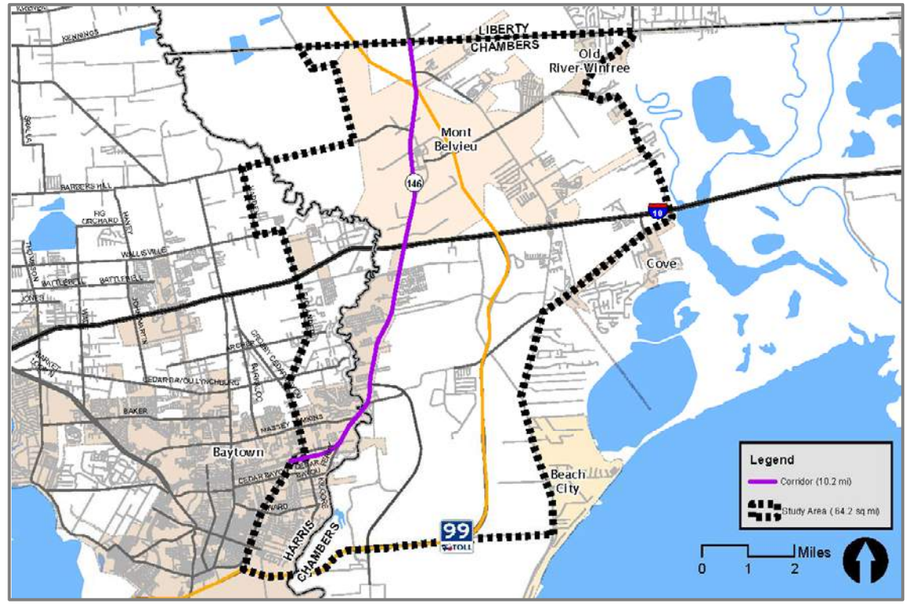


Figure 1-SH 146 Study Area

Goals & Objectives

Goal 1: Develop the general public's understanding of the study

Objectives:

1.1. Develop and evaluate effectiveness and understandability of collateral materials and information to be distributed to the public;

1.2. Inform the public about study issues through meetings with stakeholders, newsletters, fact sheets, websites, exhibits and other techniques;

1.3. Solicit feedback through e-mails, comment forms, letters and informal discussion with stakeholders;

Goal 2: Provide opportunities for public, agency and local government participation in the decision-making process

Objectives:

2.1. Develop a comprehensive list of contact information for communication throughout the study;

2.2. Communicate regularly regarding public involvement activities and study developments through distribution of public information materials to the stakeholder database;

2.3. Provide study briefings to elected officials at key milestones throughout the study or when necessary;

Goal 3: Maintain accountability, credibility and accessibility of the study team

Objectives:

3.1. Implement a documentation and response process to include "action taken" feedback on specific comments received from the public;

3.2. Maximize the use of existing community organizations to proactively reach out to the public;

3.3. Provide regular opportunities for information exchange with agency representatives, stakeholder groups and others interested in the study;

Goal 4: Engage the public

Objectives:

4.1. Implement a method for soliciting participation and input by anticipating the most effective ways to communicate information (e.g., internet, e-newsletters, mailings, exhibits, media, etc.);

4.2. Provide regular and convenient means of communication between the study team and the community;

4.3. Encourage active participation at significant study milestones and include public input as part of the decision-making process;

Goal 5: Involve the news media to maximize the potential for informed coverage

Objectives:

5.1. Utilize the study team's expertise to maximize informed coverage and involve editors and reporters in the process;

5.2. Proactively provide information to the media;

5.3. Respond to media inquiries in a timely and consistent manner;

5.4. Designate a central point of contact who is consistently responsible for distributing information to the media, both proactively and reactively;

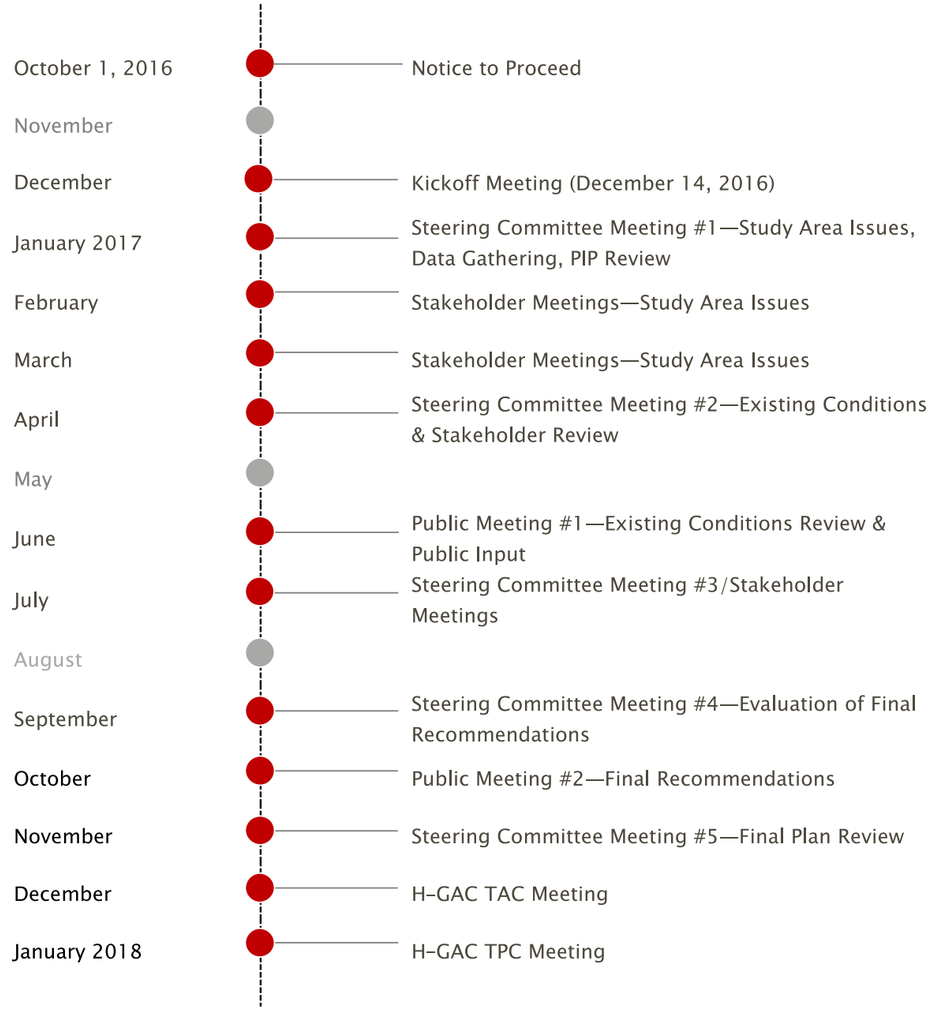
5.5. H-GAC, in cooperation with TxDOT, will respond to all media inquires

Public Involvement Schedule

This study should be completed 12 months from the Notice to Proceed date. H-GAC reserves the right to extend the study's timeframe and/or expand the study's scope of work, subject to H-GAC Board of Directors approval and additional funding availability.

During the course of the study, various types of meetings will be held to engage interested parties in the planning process. These meetings include steering committee meetings, stakeholder meetings, elected official briefings, and public meetings. Detailed information regarding each type of meeting is located in Public Involvement Program Structure section. Below is a tentative schedule of the various meetings. Actual meeting dates, times, and locations will be finalized at a later time, and are subject to change.

Project Schedule



Public Involvement Program Structure

The structure of the public involvement process is designed to strongly encourage public input and comment, provide opportunities for meaningful communication between the study team and the public, and provide the appropriate mechanisms to disseminate information and gather input. The following sections provide a description

of the fundamental approaches to the implementation of the public involvement program.

The approach to public involvement will evolve throughout the study to ensure that public interests are being served, stakeholders are being educated and input is reaching the study team. At the onset, study information will be distributed to a broad audience representing the various communities in the study area, as well as business and government entities using a study database developed for stakeholder outreach. The database will continue to be populated throughout the study to appropriately distribute information, notifications and study updates.

Steering Committee Meetings

Coordination with agencies that have agreed to participate in the development of the Plan will occur at key milestones throughout the study. The intent of steering committee meetings is to facilitate input from agencies with significant interest in the study. The technical consultant team will facilitate agency progress meetings at the behest of H-GAC and TxDOT and the study team. Up to five (5) steering committee meetings are planned for the study effort.

Stakeholder Meetings

The study team will schedule stakeholder meetings to ascertain specific information on the needs and concerns of key stakeholders located in or near the study area. Stakeholder meetings are typically scheduled on an as-needed basis. These meetings often serve as a goodwill gesture and an opportunity for key stakeholders to learn about study impacts and provide input regarding their operations and future plans. Up to four (4) stakeholder meetings are planned during the study. Other stakeholder meetings may be conducted with H-GAC staff and affected stakeholders.

Community & Neighborhood Meetings

If needed, community and neighborhood meetings are an opportunity to display study information and provide a forum for members of the public to ask study-related questions. These meetings may be requested by local groups, organizations or businesses and residents for the benefit of their residents and businesses. Community and neighborhood meetings are scheduled on an as-needed basis.

Elected Official Briefings

Providing proactive, informative and timely briefings to elected officials is vitally important to preserving the integrity of the public involvement and government outreach principles. Effective communications with government officials puts personal, face-to-face contact at a premium. Elected official briefings are intended to provide credible, reliable messages on behalf of H-GAC. It is recommended that briefings with elected officials be conducted prior to any public meetings. H-GAC staff will schedule and attend all elected official briefings.

Public Meetings

The public involvement process will involve two (2) public meetings. Public meetings will be held to (1) inform, discuss and seek information from the public about concerns and issues related to the study; and, (2) present final recommendations for physical and operational improvements in the study area. The concerns and issues identified by the public will be considered part of the study and will be used in the initial development and evaluation of alternatives.

Bilingual Community Outreach

Comprehensive outreach to multicultural stakeholders will be conducted through the utilization of nontraditional media outlets with culturally relevant community educational materials. Key tasks of the media relations program will include educating communications staff on these various media outlets and implementing consistent messaging addressing multilingual needs. The multicultural community outreach element may include the availability of translated collateral materials, presence of interpreters at public meetings and stakeholder meetings and access to study information for non-English-speaking members of the community as appropriate.

Public Involvement Strategies

Comment Management

All study-related outreach and comments will be kept in a common location and/or added to a study database to ensure efficient, organized and thorough record keeping. The public involvement process requires consistent procedures for recording and responding to public comments and for relaying public comments to key study team members and decision-makers. All comments directed to the team about the study will become part of a permanent record. A standard record-of-communication form will be utilized to document comments received throughout the study process. The type of communication, actions taken, contact information and any additional comments will be documented and added to the permanent record of the study. Comment forms and question cards will be distributed at group presentations, public meetings and other events. Designated public involvement staff will prepare a regular summary of stakeholder input that will be provided to the team. A database will be developed and used to record all communications made in person or via telephone, e-mail, fax or mail. All public comments received during the course of the study will be summarized and included in the public involvement summary report at the end of the study.

Collateral Materials

The team will develop study-related collateral materials such as fact sheets, newsletters, e-newsletters, surveys/comment cards, frequently asked questions, postcards and other relevant types of communication materials throughout the duration of the study. Collateral materials are intended to be clear, concise sources of important study information such as the study summary, timeline, maps, impacts to the study area and frequently asked questions. Initial materials are created at the onset of the study and are tailored with regard to subject matter, distribution and other needs throughout the study. Distribution of collateral materials may include US Postal Service and e-mail; these materials will also be available in hardcopy formats as appropriate.

Distribution of informational materials, such as the announcement of the public scoping meetings, will be circulated to key stakeholders that may have an interest in the study, such as trucking organizations and/or companies, recreational groups, homeowner groups, government entities, businesses and other groups identified by the study team.

Project Website

The project study website is an integral part of information dissemination. It is intended to be user-friendly and interactive to allow for an efficient means of communicating study information and gathering public comment. The website will be made available prior to the beginning of scoping and will be designed and maintained to provide up-to-date study information including newsletters, maps, frequently asked questions, public meeting presentations, meeting summaries, other informational materials and contact information. The web site address is: **SH146.hgacmpo.com**.

Project Contacts

The following points of contact have been established for the study and all calls will be documented and routed to the appropriate public involvement or technical team members to ensure up-to-date, timely and accurate information is being conveyed.

Alan Clark, H-GAC, (713) 993-4585, alan.clark@h-gac.com;

Stephan Gage, H-GAC, (713) 499-6692, stephan.gage@h-gac.com;

Carlene Mullins, H-GAC, (832) 681-2585, carlene.mullins@h-gac.com;

Michael Feeney, Lead Consultant Contact, (281) 920-6580, michael.feeney@kimley-horn.com

Media Outreach

The media outreach effort will begin in advance of the public scoping meetings. The overall goal is to utilize multiple media sources, as well as other advertisement methods, to comprehensively reach out to the communities and region with study information and meeting details. At least 15 days prior to a public meeting(s), a newspaper display advertisement informing the public of the meeting(s) will be placed in the local newspapers, including the Houston Chronicle.

Title VI/Environmental Justice

Title VI of the Civil Rights Act of 1964 and related statutes ensure that all individuals are not excluded from participation in, denied the benefit of or subjected to discrimination on the basis of race, color, national origin and sex. Executive Order 12898 on Environmental Justice directs that programs, policies and activities not have a disproportionately high and adverse human health and environmental effects on minority and low-income populations. The implementation of the PIP will give these protected populations the opportunity to participate in the study, and reasonable accommodations will be made for special needs populations.

Roles & Responsibilities

In general, the consulting team will be responsible for participating as a member of the study team and facilitating all public, stakeholder and agency meetings, assisting with the development of all materials used in public involvement activities such as meeting agendas, handouts and visual aids; and documenting the entire public involvement process in a summary report.

In general, H-GAC will be responsible for facilitating community outreach meetings, participating as a member of the study team in developing all materials used in the public involvement activities, coordinating with the study team regarding all aspects of the public involvement process, managing the project web site, providing technical input and administrative guidance as needed, reviewing all materials with regard to production schedules, distributing news releases and providing response to written comments.

Steering Committe Meeting Minutes

Kimley»Horn

MEETING SUMMARY

To: Carlene Mullins

From: Michael Feeney, PE

Date: February 21, 2017

Subject: SH 146 Subregional Study – Steering Committee Meeting #1 Minutes

Attendees: See Attached List

This memorandum is a summary of the meeting of the H-GAC SH 146 Subregional Study Steering Committee meeting held on February 1, 2017 at the City of Baytown City Hall. After introducing the project, H-GAC staff, the consultants and Steering Committee members, a discussion focusing on project goals and areas the Steering Committee would like the project to examine, the following major issues were discussed:

- **Access Management**
  - Excessive number of driveways along the corridor is a capacity and safety issue
  - Less than ideal location of driveways often creates vehicular conflicts.
  - Potential exists for backage roads to consolidate driveways

- **Improve East-West Connectivity**
  - Only east-west connectors within the study area are IH-10 and Massey Tompkins Road
  - Potential suggested routes include:
    - Extending Cedar Bayou Lynchburg Road to SH 146
    - Extending Blue Heron Parkway to SH 146
    - Hunt Road to Kilgore Parkway
    - Archer Road to Kilgore Parkway
    - Extending Old Needlepoint Road
    - Extend Kilgore Parkway

- **School locations**
  - Revisit policy to understand how schools were constructed on major roads
  - Look at revising policy as well as local improvements to increase safety

- **Signal Timing**
  - SH 146
    - Timing should be improved along SH 146
    - Vehicles have to stop at every intersection
    - Revisit signal timing

  - FM 565 at FM 1405
    - Heavy truck volumes – some phases allow only four to five trucks to clear intersection despite heavier demand
    - Review signal timing

- **Truck and Heavy Haul Issues**
  - Heavy Haul Agreement exists between Chambers County and TxDOT allows 100K load limits on certain roadway segments
  - No current regional policy in place for heavy haul trucks
  - H-GAC is conducting several studies that involve heavy haul and truck traffic
  - FM 565 and FM 1405 have load limit of 100K pounds
  - SH 99/Grand Parkway does not allow permitted/heavy loads

- **Other Issues**
  - Examine railroad crossing delays – trains regularly blocking at-grade crossing near the FM 565 intersection with FM 1405 for 30 to 60 minutes
  - Committee also would like the study to consider:
    - Beautification of 146 corridor
    - Improved mobility for all users of SH 146 - commuters, residents and freight trips
    - Revisit FM 565 projects - are they the best solutions
    - Coordinate studies with existing projects
    - Making multi-land use work together safely

The following is a summary **of potential resources for data** provided during the meeting:

- Chambers County
  - ProMiles handles the permits for Chambers County
  - Contact Bobby Hall for permit data

- City of Baytown
  - The city uses BlueTOAD to track traffic speed and travel times for SH 146 and Garth Road
  - Contact Jose Pastrana for data

- TxDOT
  - TxDOT has several projects that overlap the study area
  - Some improvements were marked on the individual intersection maps
  - Contact Omar De Leon (Beaumont District) for more information on these projects

- City of Mont Belvieu
  - The City is currently developing a Comprehensive Plan
  - Kendig Keast is the prime consultant, contact Ricardo Villagrand for more information

- Senator Nichols is drafting a bill that includes “Port Transportation Corridors”

The following is a list of **key locations** to examine during the study. Locations are based on markups made to the large overall and individual intersection aerial maps. The markups include planned TxDOT improvements, planned development along the corridor, and other identified issues.

- FM 565 / FM 1405
- SH 146 / IH-10
- SH 146 / N. Alexander Road
- SH 146 / Loop 207 / FM 1942
- FM 1942 / Hatcherville Road
- FM 565 / Eagle Drive

- FM 3180 / IH-10
- FM 565 / IH-10
- FM 565 / SH 99
- FM 565 / FM 3180
- FM 1405 / SH 99
- SH 146 / SH 99

Action Items to Complete Prior to Next Steering Committee Meeting

- Consultant to contact Steering Committee members for data and project information not readily available through H-GAC and other sources.
- H-GAC to forward the Draft Stakeholder Committee membership list to Steering Committee members for comment.
- Consultant to meet with City of Mont Belvieu to obtain further input on existing and anticipated problem areas as well as other suggestions.

Attachment: Sign-In Sheet

cc: Stephan Gage
Alyssa Thompson

Kimley»Horn

MEETING SUMMARY

To: Carlene Mullins

From: Michael Feeney, PE

Date: April 28, 2017

Subject: SH 146 Subregional Study – Steering Committee Meeting #2 Minutes

Attendees: See Attached Sign-in Sheets

This memorandum is a summary of the meeting of the H-GAC SH 146 Subregional Study Steering Committee meeting held on April 18, 2017 at the Sam & Carmena Goss Library in Mont Belvieu. The new Steering Committee members were introduced and given a brief recap of the project. Below are the major points discussed during the meeting:

- **Project Vision Statement and Goals**
  - The steering committee adopted the vision and goals (See attachment); Baytown asked that they be presented to City Council.

- **Existing Conditions**
  - Based on the data collected thus far, existing conditions of the study area were shown to the committee to illuminate the starting point for the study. These included:
    - Average Daily Traffic Volumes
    - AM & PM Peak Hour LOS
    - Crash Data
    - Planned Improvements

- **Stakeholder Meetings**
  - Input from the stakeholder meetings held in late March was relayed to the committee. Recurring issues from those meetings included:
    - *SH 146 Congestion*
    - *SH 99 Tolls*
    - *Heavy Haul Policy*
    - *Additional Road Connections*
    - *Railroad Crossings*
    - *Bike/Pedestrian/Aesthetics*
  - Along with additional problems areas identified by the stakeholders, suggestions for improvements and “wish list” items were given. These suggestions were passed along to the Steering Committee members to discuss.

After presenting on the existing conditions and providing a recap of the stakeholder meetings, the floor was opened to allow committee members to discuss their concerns and provide feedback. Below are the major discussion points:

- There was a consensus that the annual growth rate of 3-5% for Barbers Hill ISD given during the stakeholder meetings was too low
- TxDOT mentioned the website for the I-10 overpass at FM 3180; the site shows the various alternate routes planned during construction
- TxDOT would approve closure of any underutilized plant entrances
- Mont Belvieu would approve closing the northern part of Loop 207
- TxDOT believes that once sections I & H of SH 99 are completed, it will pull people off SH 146 regardless of the tolls
- Most local trucks do not get reimbursed for tolls which is why they do not use SH 99
- Baytown believes that a majority of the truck traffic currently on SH 146 is local traffic and that they would not use SH 99 heavily if tolls were eliminated or reduced
- Baytown police have truck enforcement along SH 146, but not SH 99
- The heavy haul policy referenced during the meeting applies in Chambers County only per the Texas Transportation Code (Title 7, Subtitle E, Chapter 623, Subchapter M: Chambers County Permits). This subchapter provides an optional procedure for the issuance of a permit by Chambers County for the movement of oversize or overweight vehicles carrying cargo on certain state highways located in Chambers County.
- Committee members agreed that pedestrian/bike access along SH 146 is a bad idea
- The committee questioned why there were no counts along SH 99 and Kilgore Parkway
- TxDOT said the volumes for the past 3-4 years are not steadily rising; they are fluctuating
- TxDOT asked if we could ask industry stakeholders if there was any construction going on during the counts; they want to verify the counts are reflective of average conditions
- Baytown police said that the Texas A&M Engineering Extension Service (TEEX) was also collecting counts in the study area
- Vehicles/heavy trucks are using Fisher Road to avoid paying the toll on SH99. Fisher has a weight limit and cannot handle the higher weights. Vehicles/heavy trucks going through the area need to use FM565 as an alternative.
- Chambers County expressed concern about the drainage in the area; Consultant explained that this study is not a master drainage plan; however, it can consider the cost of making improvements to drainage issues in the proposed solutions
- What happens if there is a “Hill Spill” in Mont Belvieu and an evacuation must occur? Mont Belvieu needs alternative routes out of the area.

- **Action Items to Complete Prior to Next Steering Committee Meeting**
  - Consultant and H-GAC to finalize data collection.
  - Consultant to meet with individual stakeholders: ExxonMobil, Chevron Philips Chemical, Enterprise Products, and Union Pacific Railroad Company.
  - Consultant to begin developing short and long term improvements.
  - Public Meeting - to be held the week of June 5 (tentatively)

Attachments: Sign-In Sheet
Adopted Vision and Goals
Meeting presentation

cc: Stephan Gage
Francis Rodriguez
Alyssa Thompson

Kimley-Horn.com | 11700 Katy Freeway, Suite 800, Houston, TX 77079 | 281-920-6580

Vision and Goals

Adopted April 18, 2017

Vision

The vision of the SH 146 Subregional Plan is to improve mobility and safety of the roadway network for all users.

Goals

The SH 146 Subregional study will develop short and long term innovative and actionable transportation strategies through a combination of physical, operational and regulatory measures.

The recommendations will:

- Enhance safety by addressing the needs of all users
- Mitigate Congestion
- Enhance Streetscapes
- Address commercial vehicle issues
- Mitigate mobility barriers
- Increase connectivity for all modes of transportation
- Engage the public in decision making process

MEETING SUMMARY

To: Carlene Mullins

From: Michael Feeney, PE

Date: August 7, 2017

Subject: SH 146 Subregional Study – Steering Committee Meeting #3 Minutes

Attendees: See Attached Sign-in Sheets

This memorandum is a summary of the H-GAC SH 146 Subregional Study Steering Committee Meeting #3 held on August 1, 2017 at the Baytown Community Center. Attendees were given an update on the project schedule and a recap of comments received at previous Steering Committee, Stakeholder, and public meetings. Common issues brought up during past meetings were briefly discussed to show the overlap between the guiding groups and to reinforce how the project vision and goals align with the needs of the study area.

The purposed of this meeting was to walk through the proposed short and long-term improvements developed so far and provide an opportunity for the Steering Committee to give feedback. The following is an overview of what was discussed:

Long-Term Alternatives

Major Roadway Needs – map showing potential new major and minor connections and roadways needing to be widened based on known planned city, county, and TxDOT improvements. The map also indicated which planned improvements are already funded.

- Feedback:
  - Multiple committee members mentioned the large number of pipelines present throughout the study area as a significant restriction to roadway widenings, especially along FM 1942
  - Suggestion to look at developing improvements to Hatcherville Road to help relieve congestion on FM 1942
  - Consultant pointed out the proposed north-south alignment connecting Main Street toward US-90 as another alternative to help alleviate congestion
  - Look at enhancing Fisher Road to allow greater weight limits
  - Chambers County has partial ROW for a planned roadway alignment (EW 4) that will tie into an existing curb cut at SH 99
  - Future FM 1409 extension will help relieve congestion on FM 565 north of I-10

Major Intersection Needs – map showing major interchanges that will need significant redesign in the long term as well as railroad crossings with potential for grade separation

- Feedback
  - One of the priority intersections should be the railroad crossing near FM 565 and FM 1405
  - TxDOT supported the railroad separation at the I-10 frontage roads west of SH 146
  - Schematics are being developed for the TxDOT I-10/FM 3180 interchange project

Bike/Pedestrian Needs – map showing routes with potential for bikeway/trail connectivity and/or sidewalk connectivity.

- Feedback*:*
  - Chambers County does not have the authority currently to require sidewalks for new development; the cities don't have authority in the ETJ either
  - The City of Baytown does require 5' sidewalks for new development within city limits and is also strongly recommending sidewalks for development in the ETJ, especially along Kilgore Parkway
  - Consider development regulations that also require building pedestrian/bike spines
  - A pedestrian path along SH 146 would require additional ROW to provide buffer from roadway; issue would be avoiding pipelines
  - Potential for 10' multiuse path on one side of SH 146

E-W connections – most of the E-W connections developed thus far were for the Baytown area. Therefore, these were only touched on briefly during the meeting. Members who were interested in discussing the potential routes in more detail stayed after the formal meeting was over.

Short-Term Alternatives

The short-term improvements presented at the meeting focused primarily on mobility and access. A toolbox was developed with basic concepts of typical improvement types. This toolbox was then used to call out each of the suggested improvements throughout the study area. A booklet of plan sheets showing the proposed enhancements along the SH 146 corridor and each of the peripheral study intersections was provided to the committee members for them to mark up and give comments on.

- *Feedback*
  - Committee members gave specific feedback on each of the plan sheets. Those comments have been documented and will be incorporated into the improvements before the next Steering Committee meeting
  - Pipelines were mentioned again as a potential problem for some of the proposed improvements

Evaluation Process

- The SH 146 corridor and peripheral study intersections will be grouped into "Improvement Areas" based on similar factors (i.e. location, type of proposed improvement)
- Each of the seven project goals is categorized into one of four "Objective Groups": safety, mobility, access, and sustained growth
- Four quantifiable performance measures are assigned to each objective group. Each Improvement Area can then be given an overall score on how well it addresses all the performance measures.
  - Low – 1
  - Medium – 3
  - High – 5

Action Items to Complete Prior to Next Steering Committee Meeting

- Consultant to meet with individual stakeholders: ExxonMobil, Enterprise Products, and Union Pacific Railroad Company.
- Consultant to refine short term alternatives based on meeting feedback
- Consultant to expand on long term alternatives
- Consultant to provide suggested policy recommendations for next Steering Committee meeting
- Stakeholder meeting – to be held in August

Attachments: Sign-In Sheet
Meeting Presentation
Short-Term Alternatives Handout

cc: Stephan Gage
Francis Rodriguez
Alyssa Thompson
Payton Arens

Kimley-Horn.com | 11700 Katy Freeway, Suite 800, Houston, TX 77079 | 281-920-6580

MEETING SUMMARY

To: Carlene Mullins

From: Michael Feeney, PE

Date: November 27, 2017

Subject: SH 146 Subregional Study – Steering Committee Meeting #4 Minutes

Attendees: See Attached Sign-in Sheets

This memorandum is a summary of the H-GAC SH 146 Subregional Study Steering Committee Meeting #4 held on November 9, 2017 at the Sam and Carmena Goss Library in Mont Belvieu. Attendees were given an update on the project schedule and comments received at the previous Stakeholder meetings.

The purposed of this meeting was to present the updates to the proposed near-term and long-term recommendations and to present the policy recommendations to the committee members to allow them an opportunity to provide feedback. The following is an overview of the items discussed:

Short-Term Alternatives

The committee members were shown a fly-though of the corridor presenting the short-term recommendations. A booklet of plan sheets showing the proposed enhancements along the SH 146 corridor and each of the peripheral study intersections was also provided. Cost estimates and the evaluation results for the proposed improvements were discussed as well.

- *Feedback*
  - There was some discussion on closing driveways; an agency cannot force landowners to close driveways if the owners are not making any improvements or changes to land use
    - Can closures be incentive based?
  - Comment to re-examine industrial driveways on SH 146; are all driveways needed? Could we close even more?
    - Consultant mentioned that many of the driveways are not main exit/entrance drives, but are used once or twice a year only for over-sized loads
  - Overall, committee members approved of the near-term recommendations and the evaluation of those improvements

Long-Term Alternatives

Updated maps showing the long-term roadway, intersection, and hike/bike needs were shown to the members.

- *Feedback:*
  - Mont Belvieu has heard from its residents that they do *not* want transit routes, especially those which connect to the METRO system
  - Baytown wants more transit for some areas (i.e. to the Walmart shopping center) but does not have funding at this time
  - Suggestion that no hike/bike paths should be recommended along heavy industrial roadways (i.e. FM 565)
  - The FM 1405/FM 565 intersection was discussed at length:
    - The Freight Mobility Study lists this intersection as top problem area
    - Top UPRR at-grade crossing complaint
    - Could potentially close FM 565 in the future – need to provide second option to recommended improvements showing this scenario
  - Comment to add the number of railroad crossings impacted by the E/W alternatives breakdown
  - Senate Bill 1524 to take effect in January 2018 – how will this affect the study area?
  - Concern over proposed toll study on SH 99; would require all seven counties to sign revision to Market Waiver Agreement
  - Suggestion to acknowledge other studies taking place that overlap with study area so recommendations can be coordinated for greater impact
  - I-69 Bypass study about to be kicked off; northern section of bypass expected to be in the vicinity of SH 146 and SH 99 intersection

Hurricane Harvey Impacts

The Steering committee discussed the impacts of hurricane Harvey and how it should be addressed in the report.

- *Feedback:*
  - While drainage issues are outside the scope of this study, there was a consensus that the implications from Hurricane Harvey should be mentioned in the report as more than just a footnote
  - Concern from TxDOT on recommending improvements based on results from the hurricane that could affect the rest of the state; while Harvey did highlight issues within the study area, worried that too much focus would pull form the original purpose of the study
    - Suggestion by consultant to mention local type improvements such as raising all signal cabinets to protect from damage due to floodwaters
  - Comment about the bridges across Cedar Bayou at SH 146 and I-10 being dammed up during the storm
  - Intersection at IH-10 and SH 146 was under about 3 feet of water

Action Items to Complete Prior to Next Steering Committee Meeting

- Refine policy recommendations
- Finalize near and long-term physical recommendations
- Finalize evaluation of proposed recommendations
- Public meeting – to be held on January 11, 2018
- Final Report to be submitted in March

Attachments: Sign-In Sheet
Meeting presentation

cc: Stephan Gage
Francis Rodriguez
Alyssa Thompson
Payton Arens

Stakeholder Meeting Minutes

MEETING SUMMARY

To: Carlene Mullins

From: Michael Feeney, PE

Date: April 28, 2017

Subject: SH 146 Subregional Study – Stakeholder Meeting Minutes

Attendees: See Attached Sign-in Sheets

This memorandum is a summary of the meetings of the H-GAC SH 146 Subregional Study Stakeholder meetings. Two meetings were held on March 28, 2017 at the Chambers County Cedar Bayou Annex. The first meeting included representatives from the various industries within the study area and the second included members from churches and schools in the City of Baytown. Two more meetings were held on March 30, 2017 at the City of Mont Belvieu Eagle Point Recreational Complex. The first meeting included elected and agency officials while the second included members from churches and schools in the City of Mont Belvieu. At each of the four meetings – after introducing the project, H-GAC staff, and the consultant team – the floor was opened to allow the meeting attendees a chance to discuss problem areas they saw within the study area as well as give ideas to improve mobility and safety. The following are main themes from those discussions:

- **SH 146 Congestion**
  - Increased truck traffic due to plant expansions and trucks avoiding the toll on SH 99
  - School Zones and bus routes along SH 146 delay traffic due to numerous stops
  - There is a lack of practical alternative routes from I-10 to the Port of Houston or the port facilities at Cedar Port
  - There are many problems areas along SH 146 – particularly, intersections at:
    - I-10 (traffic backs up for 2 miles north and south of I-10 during PM peak hours)
    - FM 565
    - FM 1405
    - Clark Elementary
    - Ferry Road
  - Based on feedback from the stakeholders, the majority of crashes seen along SH 146 are due to speeding, little to no access management, and passenger vehicles cutting off the larger trucks
  - Suggested solutions provided by meeting attendees were:
    - Raised medians to better control access
    - Improvements to signal coordination

    - Widening the roadway
    - Constructing grade separated main lanes
    - Constructing additional connectors to SH 146
    - Reducing or eliminating the toll on SH 99 to encourage more trucks to use that route

- **SH 99**
  - Trucks are avoiding the toll on SH 99 which is increasing truck traffic on SH 146
  - SH 99 sections H & I will begin construction in 2018; once completed, it is anticipated that this will only add to the congestion on SH 146 as it brings in more development unless more trucks can be persuaded to take SH 99
  - Currently SH 99 is not a viable heavy haul option from I-10 to the Port of Houston or the port facilities at Cedar Port as the terms of the heavy haul agreement only classify the SH 99 frontage roads as heavy haul and the frontage roads are not continuous.
  - Suggested solutions provided by meeting attendees were:
    - Find a way to encourage more truck drivers to utilize the free part of SH 99 by routing them to Kilgore Parkway potentially through wayfinding and/or variable message signs
    - Reduce the toll for trucks on SH 99; even for a trial period
    - Renegotiate the Market Valuation Waiver Agreement signed by the 7 counties affected by the tollway.
      - The agreement is made between TxDOT and the 7 affected counties for the purpose of waiving the requirement in Section 228.0111 of the Texas Transportation Code to develop a market valuation for the SH 99 Grand Parkway Project. The terms and conditions of the agreement essentially outlines the Grand Parkway project as a single project subject to any one or more advanced funding agreements that may be entered into between TxDOT and one or more of the Counties for the development, financing, construction and operation of the tollway.

- **Need additional E/W and N/S roads**
  - A major theme from the beginning of this project has been the need for an additional east/west road to connect SH 146 to Baytown. During the stakeholder meetings, many voiced the need for more than one additional E/W connection in Baytown as well as the need for additional E/W and N/S connections in Mont Belvieu.
  - Potential E/W routes discussed by meeting attendees:
    - Old Needlepoint Road
    - Cedar Bayou Lynchburg
    - Kilgore Parkway; extending all the way to FM 3180 and FM 2354
    - Langston Drive

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- EMS expressed concern about getting to Sjolander from SH 146, currently they must go to I-10. Having a E/W road would take 15+ minutes off response time.
- Need another N/S road in Mont Belvieu – extend FM 1409 south to I-10

- **Problems at Railroad Crossings**
  - Issues with the multiple rail crossings within the study area, as well as the future of the railroad itself were discussed heavily during the meetings. Trains block roads for extended periods of time (20-45 minutes) which causes major traffic delays.
  - Major problem areas were:
    - FM 565 just east of FM 1405
    - FM 1942 west of SH 146
    - SH 146 Overpass, south of Kilgore Pkwy

- **Pedestrian/Bike Facilities and Roadway Aesthetics**
  - Though there is not adequate shoulder width to safely accommodate pedestrians and/or cyclists, it was noted during the meetings that pedestrians are often seen along SH 146
  - Goose Creek ISD does not allow its students to walk along or across SH 146, even if they live directly across from the schools; the exception to this rule is the Junior High at SH 99 where the school utilizes two safety guards to help safely direct students across the highway
  - Barbers Hill ISD is projecting an annual growth rate of 3 -5%
  - Goose Creek ISD is projecting an annual growth rate of 1-2%
  - Need sidewalks along SH 146
  - Eagle Drive was noted as a positive example of roadway aesthetics; similar improvements are desired along SH 146 and other corridors where feasible

- **Other issues:**
  - Congestion along FM 3180
    - As development continues east of SH 146 in both Baytown and Mont Belvieu, an increase in congestion on FM 3180 has been noted and it is anticipated to only increase with time
  - The I-10 overpass at FM 3180
    - The effect of this project's construction on the nearby roadways, particularly the intersection at I-10 and FM 565
  - The geometry of SH 146 and other roadways with large truck volumes
    - Increase turning radii for trucks at intersections and plant entrances
    - The need for longer acceleration and deceleration lanes

    - Proper banking of roads for large vehicles
  - Wayfinding signs are needed throughout the area
  - Need policy for Hazardous Chemical Route
  - Fisher road/FM 3108 is heavily traveled in lieu of using SH 99.
  - Improve traffic signals along SH 146.
  - Improve Hatcherville road. This would provide an alternative route for SH 146 to Liberty County

Action Items to Complete Prior to Next Steering Committee Meeting

- H-GAC to provide remaining data which includes the latest development/land use information and crash analyses
- Consultant to begin on determining short and long term improvements
- Consultant to meet with certain industry stakeholders

Attachment: Sign-In Sheets
Presentation

cc: Stephan Gage
Francis Rodriguez
Alyssa Thompson

MEETING SUMMARY

To: Carlene Mullins

From: Michael Feeney, PE

Date: September 6, 2017

Subject: SH 146 Subregional Study – Second Stakeholder Meeting Minutes

Attendees: See Attached Sign-in Sheets

This memorandum is a summary of the second set of H-GAC SH 146 Subregional Study Stakeholder meetings. Two meetings were held on August 22, 2017 at the Chambers County Cedar Bayou Annex in Baytown. Two more meetings were held on August 24, 2017 at the Sam & Carmena Goss Library in Mont Belvieu. This second round of stakeholder meetings included industry and business representatives, emergency response members, and leaders from the surrounding schools and churches. At each of the four meetings, attendees were given an update on the project schedule and a recap of the common issues brought up during past meetings and their overlap with the concerns of the Steering Committee and public. The purpose of these meetings was to review and comment on the proposed short and long-term recommendations and allow for commentary. The following is a summary of those meetings:

Long-Term Alternatives

Meeting attendees were given an overview of the major roadway and intersection needs that have been identified within the study area. These needs included potential new roadway connections, roadway widenings, interchange redesigns, and grade separations for railroad crossings. A map showing routes with potential for bikeway/trail/sidewalk connectivity was also presented as part of the long-term assessment. A long-term policy recommendation was briefly discussed for a pilot program to determine the effects of reducing or fully eliminating tolls on SH 99. The three main routes that are being further analyzed as potential new east-west connections in Baytown were also reviewed during the meetings.

Feedback on long-term alternatives:

- As noted throughout the study, the railroad crossing at FM 565 and FM 1405 is a major concern for everyone. Comments included questions on timeframe, feasibility, and ways the stakeholders can help to ensure improvements to this intersection are made a priority.
- Ameriport is anticipating lots of new development in the upcoming years, adding thousands of trucks trips. It was added that truck traffic to/from Ameriport currently only uses FM 565 to reach SH 146 in order to avoid the tolls on SH 99.
- Concerns over the construction set to start on SH 99 and whether the new sections were being designed to accommodate a higher weight limit.
- Additional feedback was provided by city staff from Mont Belvieu on updates to their CIP, including roadway connections to the Chambers County FM 1409 extension and the future sections of SH 99.
- Concern on ensuring agency coordination throughout study since there are multiple other studies that overlap with the SH 146 subregion.

Short-Term Alternatives

The short-term improvements presented at the stakeholder meetings were the same as those presented at the most recent Steering Committee meeting, with minor changes made based on committee member feedback. For the stakeholder meetings, a fly-through video was created showing the proposed improvements in Google Earth. Large plan sheets of the improvements were also provided for attendees to mark up with their comments.

Feedback on short-term alternatives:

- Mont Belvieu agrees with recommendation to close north side of Loop 207 at SH146
- Remove one-way recommendation at Fitzgerald; this road is intended to be an “escape route” if there is an emergency situation at any of the plants along FM 1942 or along Hatcherville Rd
- Question on feasibility for closing off Ferry Road entirely rather than just making a right-only
- Comment on ensuring signal timing coordination throughout corridor is part of recommendations
- Issues with trucks turning north onto SH 146 from Fitzgerald and using two-way left turn lane as acceleration lane which impacts drivers wanting to turn into the Maranatha Church
- Maranatha Church also voiced wish to retain at least two driveways if the raised median being proposed on SH 146 continues in front of their property
- Chevron provided information on their truck driveways – one will be entrance only, the other exit only. They requested that the improvements at the exit only driveway show a full access median cut to allow trucks to turn north on SH 146

Stakeholder Survey

A survey was distributed to meeting attendees to fill out after the presentation. The survey asked them to rank the major issues identified in the study in both the short and long-term with one (1) designating the most concerning. Similarly, the survey also asked participants to rank the proposed improvements with a (1) designating the most desirable. The following tables below show the combined overall rank determined by the stakeholders. A copy of the individual surveys can be found as an attachment.

Near-term (0-5 years)

Issue	Priority
SH 146 Congestion	1
SH 146 Signal Timing	3
SH 146 Driveway Frequency	5
FM 565 Congestion	6
FM 3180 Congestion	9
School Zone Safety	4
Transit/Bike/Pedestrian Facilities	10
Roadway/Intersection Aesthetics	8
Truck Traffic	2
Underutilization of SH 99	7

Improvement	Priority
Improve Motorist Safety	1
Improve Bike/Pedestrian Facilities	10
Widen Roadways	3
Widen Intersection	4
Improve Signal Operations	2
Add Medians on SH 146	5
Reduce Driveways on SH 146	7
Provide Transit Services along SH 146	9
Add Lighting/Landscaping Along Roads/Medians	8
Change Policy on SH 99 Heavy Haul Permits	6

Long-Term (6+ years)

Issue	Priority
Heavy Haul Traffic	2
Limited Route/Road Options	1
Railroad Crossings	3
Hazardous Material Hauling	4
Congested Hurricane Evacuation Route	5

Improvement	Priority
Build Overpasses	2
Widen Intersections	4
Build Roads/Bridges Over Cedar Bayou	6
Build Roads Under/Over Railroad Crossings	3
Widen Existing Roads	1
Build New Roads	5

Action Items to Complete Prior to Next Steering Committee Meeting

- H-GAC to establish date and location for second public meeting.
- Consultant to refine improvements based on Steering Committee and stakeholder feedback.
- Consultant to provide rough cost estimated for recommendations.
- Consultant to begin ranking recommended improvements using quantitative evaluation process.

Attachment: Sign-In Sheets
Presentation
Surveys

cc: Stephan Gage
Francis Rodriguez
Alyssa Thompson
Payton Arens

Public Meeting Minutes

MEETING SUMMARY

To: Carlene Mullins

From: Michael Feeney, PE

Date: June 20, 2017

Subject: SH 146 Subregional Study – Public Meeting #1 Minutes

Attendees: See Attached Sign-in Sheets

This memorandum is a summary of the meeting of the H-GAC SH 146 Subregional Study public meeting held on June 6, 2017 from 6-7:30pm at Living Hope Church in Baytown, Texas. Elected officials (4) and public (38) were addressed and given a brief recap of the project. Below are the major points discussed during the meeting:

- **Project Vision Statement and Goals**
  - The steering committee adopted the vision and goals (See attachment) at previous meetings in February and April; these were presented to the community of Baytown during the public meeting.

- **Existing Conditions**
  - Based on the data collected thus far, existing conditions of the study area were shown to the public to demonstrate the starting point for the study. These included:
    - Average Daily Traffic Volumes
    - AM & PM Peak Hour LOS
    - Crash Data
    - Planned Improvements

- **Stakeholder Meetings**
  - Input from the stakeholder meetings held in late March was relayed to the public. Recurring issues from those meetings included:
    - SH 146 Congestion
    - SH 99 Tolls
    - Heavy Trucks
    - Additional Road Connections
    - Railroad Crossings
    - Bike/Pedestrian/Aesthetics

  - Along with additional problems areas identified by the stakeholders, a “Corridor Improvement Toolbox” was proposed to the public. This introduced possible services that could be performed on the roadway to improve the problems discussed. These services included:
    - Median
    - Signalized Intersections
    - Turn Lane addition or Extension
    - Bicycle Lanes/ Trails
    - Channelized Left Turn
    - Sidewalk Connectivity & Pedestrian Crossings
    - Alternative Intersection Design
    - Cross Access & Site Circulation
    - Driveway Consolidations
    - Corridor Identity & aesthetics

Members of the Baytown community were given an opportunity to voice their comments and concerns through comment cards presented at the meeting, communication via email, and marking on physical maps presented at the meeting. Below are the major points of the feedback received:

- **Overpass Addition**
  - FM 565 at 1405
  - Hatcherville Rd at 1942
  - SH 146 heading north out of Baytown
    - Suggestion to build an elevated 4.5-mile section from the train trestle near the Pinehurst subdivision to Maranatha Temple on the far side of old Mont Belvieu to reduce traffic
  - Baytown Loop at N Alexander Dr
    - Overpass
    - Keep ramps near Hunter’s Ridge Dr and Kindleberger

- **Traffic Signal Construction**
  - Additional traffic signal along SH 146 – specific request for one at the entrance to the Tanglewilde subdivision
  - SH 146 at Loop 207 (South intersection)
    - Will this remain on East side
    - TARGA concern for light to remain
    - Need signal to remain

- US 99 at Kilgore Pkwy
  - Lighting needed, fatalities – stop sign has helped
- SH 146 at Country Squire Blvd
  - Need signal - peak hours are 4:30-6 PM and 5:30-7 AM
- SH 146 at Kilgore Pkwy
  - Flashing yellow when light is green
- SH 146 at Winfree St
  - TARGA - difficult to access SH 146 safely
  - Will county make paved road?

- **Turn Lane Addition**
  - SH 146 at Shell Rd – entrance to Tanglewilde Subdivision.
  - SH 146 at Devinwood Dr – right turn lane into elementary school
    - Queuing during school
  - SH 146 at Langston Dr

- **Signal Timing**
  - SH 146 at Loop 207 (North intersection)
  - SH 146 at Crosby Rd
  - SH 146 at FM 565

- **Improve East/West Connectivity**
  - Need East/West corridor between Massey Tompkins and I-10 that crosses over Cedar Bayou and intersects with SH 146
  - Crosby Rd/FM 1942 between Oilfield Rd and Barber Rd
    - Crossing at railroad – need better East/West connection
  - New road extension of FM 565 through to SH 146 (crossing N Main St and 3rd St)

- **Truck Traffic Comments**
  - Design radii for tractor trailer rigs where heavy truck traffic is expected
  - Divert truck traffic via US 99 and 330
  - Trucks only use right side of road along SH 146 S
  - Truck restrictions on 146

- SH 146 at truck stop near Langston Dr
  - Trucks turning left – need access control
- SH 146 at Baytown Loop
  - Lean for trucks
- SH 146 at truck stop between W Williams St and Loop 207
  - Trucks are hard to see when clear from the north

- **Other Issues**
  - Need to stop hazards chemicals traffic because of new school, homes and business near the highway.
  - Under use of SH 99 – reduce or eliminate its tolls
  - Extend median on SH 146 directly south of I-10
  - SH 146 at Langston Dr - speeding
  - SH 146 at Wallace Rd
    - close road?
    - Truck signage to US 99
  - Close Loop 207 (N) at SH 146 – this location has numerous crashes
  - How will the improvements effect Hurricane evacuation?

- **Action Items to Complete Prior to Next Steering Committee Meeting**
  - Finalize Data Analysis
  - Develop Alternatives
    - Short, Medium and Long Term
    - Policies / Regulations

Attachments: Sign-In Sheet
Meeting presentation

cc: Stephan Gage
Francis Rodriguez

SH 146 Subregional Study
Public Meeting
Living Hope Church
7611 TX-146, Baytown, TX 77523
(Photos may be taken and used for marketing purposes)

DATE: Tuesday, June 6, 2017 **TIME:** 6:00 - 7:30 P.M.

NAME (Check if Elected Official) ☑	City of Residence/Business	EMAIL	How Did You Learn of This Meeting?	
☐ Larry + Darlene Castleberry	Baytown	larrycastleberry@comcast.net	☑ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ CHRIS CHAVIS	BAYTOWN	CHRISTOPHER.CHAVIS@BAYTOWN.ORG	☐ Word of Mouth ☑ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☑ Website
☐ David Carr	Baytown	dlcarr@yahoo.com	☑ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Martha Harris	Baytown	Nurseonababy@yahoo.com	☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Charles D. McCloskY	Baytown	charlesdmccloskY@gmail.com	☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ BETHY A. MCC	BAYTOWN	bethyannmccloskY@gmail.com	☐ Word of Mouth ☑ Newsletter ☑ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ JOSE PASTRANA	BAYTOWN	JOSE.PASTRANA@BAYTOWN.ORG	☑ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website

SH 146 Subregional Study
Public Meeting
Living Hope Church
7611 TX-146, Baytown, TX 77523
(Photos may be taken and used for marketing purposes)

DATE: Tuesday, June 6, 2017 **TIME:** 6:00 - 7:30 P.M.

NAME (Check if Elected Official) ☑	City of Residence/Business	EMAIL	How Did You Learn of This Meeting?	
☐ Bettina G Villarreal	7923 Cedar View St. Baytown, TX 77523	VillarrealabDven2@.net	☐ Word of Mouth ☐ Newsletter ☑ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Hilcasso Villarreal Jr	"	"	☐ Word of Mouth ☐ Newsletter ☑ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Bill Orr	127 W Circle	BORR@juno.com	☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice / Recruit Partner ☐ Dynamic Board Sign ☐ Website
☐ Jimmy Smith	Baytown	jimmy.smith@bayswim.com	☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Nadia Watkins	CenB	nwatkins@montbelvieu.net	☐ Word of Mouth ☐ Newsletter mailer ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ STEPHAN GAPZ	HGAC	On File	☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Bill Walker	Self		☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
Michelle Chapman	Baytown	michelle.chapman@lhobt.org	Social media	

SH 146 Subregional Study
Public Meeting
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DATE: Tuesday, June 6, 2017 **TIME:** 6:00 - 7:30 P.M.

NAME (Check if Elected Official) ☑	City of Residence/Business	EMAIL	How Did You Learn of This Meeting?	
☐ Matt Mills	Baytn	Matt.Mills@baytown.org	☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Meagan Coughlin	Hous		☑ Word of Mouth ☐ Newsletter ☑ Social Media	☐ Legal Notice ☑ Dynamic Board Sign ☐ Website
☐ Stephen DosCarlos	Baytown		☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Rick & Donna Welkscl	Baytown		☑ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Katrena Eastman	Baytown		☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Thomas Eastman	Baytown		☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Ronald Hatchcock	BAYTOWN	POTASAN@COMCAST.NET	☐ Word of Mouth ☐ Newsletter mailer ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website

SH 146 Subregional Study
Public Meeting
Living Hope Church
7611 TX-146, Baytown, TX 77523
(Photos may be taken and used for marketing purposes)

DATE: Tuesday, June 6, 2017 **TIME:** 6:00 - 7:30 P.M.

NAME (Check if Elected Official) ☑	City of Residence/Business	EMAIL	How Did You Learn of This Meeting?	
☐ Rusty Senac	Beach City		☐ Word of Mouth ☐ Newsletter ☐ Social Media	☑ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Lars Smith	Baytown	montbelvieudomains@hotmail.com	☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Leighton Lidwell	Baytown		☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ John Gilliam	South Houston	John.gilliam@gcciD.NET	☑ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Ricardo Villegrand	City of Mont Belvieu	rvillegrand@montbelvieu.net	☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Ken Donnelly	City of Mont Belvieu	Kdonnelly@montbelvieu.net	☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Edie Johnson	Baytown		☐ Word of Mouth ☑ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
Brenda Aguirre	Baytown/MontBelvieu	love2care@hotmail.com	Flyers – face to face delivery	

SH 146 Subregional Study
Public Meeting
Living Hope Church
7611 TX-146, Baytown, TX 77523
(Photos may be taken and used for marketing purposes)

DATE: Tuesday, June 6, 2017 **TIME:** 6:00 - 7:30 P.M.

NAME (Check if Elected Official) ☑	City of Residence/Business	EMAIL	How Did You Learn of This Meeting?	
☐ Susan McCormick	Baytown	rebel06@yahoo.com	☐ Word of Mouth ☐ Newsletter ☑ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Gary Nelson	Mont Belvieu	gnelson@co.chambers.tx.us	☐ Word of Mouth ☐ Newsletter letter sent ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Marian Sparks	Baytown	MARIANSUE@msn.com	☐ Word of Mouth ☐ Newsletter MAILER ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Barbara Kolon	Houston Harris County	barbara.kostover@ci.pkty.tx.us	☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Anthony Price	GCCISD	anthony.price@gccisd.net	☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Charles Aitchison	TXDOT		☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ TONY CRANMER	MONT BELVIEU		☐ Word of Mouth ☐ Newsletter ☑ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website

SH 146 Subregional Study
Public Meeting
Living Hope Church
7611 TX-146, Baytown, TX 77523
(Photos may be taken and used for marketing purposes)

DATE: Tuesday, June 6, 2017 **TIME:** 6:00 - 7:30 P.M.

NAME (Check if Elected Official) ☑	City of Residence/Business	EMAIL	How Did You Learn of This Meeting?	
☐ Arnold Peters			☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Robert C. Hopkins	Baytown		☐ Word of Mouth ☑ Newsletter ☑ Social Media	☐ Legal Notice ☑ Dynamic Board Sign ☐ Website
☐ Bryan Crismon	Targa Resources		☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☒ Website/email
☐ Patricia Lourd	Baytown	mlaog@cfaith.com	☐ Word of Mouth ☑ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Roy Turner	Chambers County	rturner@chamberstx.gov	☐ Word of Mouth ☐ Newsletter ☑ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Emilio Levario	City of Mont Belvieu	elevario@montbelvieu.net	☐ Word of Mouth ☒ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
☐ Joe+Kay Brazil	Baytown	jbrfish@aol.com	☐ Word of Mouth ☐ Newsletter ☐ Social Media	☐ Legal Notice ☐ Dynamic Board Sign ☐ Website
ATO JIBOWU	HGAC			

MEETING SUMMARY

To: Carlene Mullins

From: Michael Feeney, PE

Date: February 26, 2018

Subject: SH 146 Subregional Study – Public Meeting #2 Minutes

Attendees: See Attached Sign-in Sheets

This memorandum is a summary of the meeting of the H-GAC SH 146 Subregional Study public meeting held on January 11, 2018 at the Maranatha Church in Mont Belvieu, Texas. Not counting present members from the study team, there were twenty-four (24) attendees, including elected members of the community. The meeting started with a PowerPoint presentation that reviewed the study area and presented the short and long-term recommendations. Time was given after the presentation to allow for questions and comments. Roll plots of the recommendations were also laid out on tables for people to mark on with their comments and concerns. Below are the major points discussed during the meeting:

Project Overview
The attendees were given a recap of the study area, the project Vision and Goals, the schedule, and the Steering Committee members. A table showing the identified issues was also shown to compare the major issues shared by the Steering Committee, Stakeholder, Public, and data gathered during the study.

Short-term Recommendations (0-5 years)
After reviewing the planned improvements within the study area that are already funded, the presentation outlined the proposed short-term recommendations for both the SH 146 Corridor and the Peripheral Intersections. Short-term physical improvements include adding medians, closing driveways, adding left and right-turn lanes, constructing acceleration lanes, and signal installations. A fly-through of the proposed improvements along SH 146 was developed to show in Google Earth. The short video illustrated the recommendations on an aerial view of the corridor. Public transit recommendations were also briefly discussed.

Long-term Recommendations (6+ years)
The long-term physical recommendations included both physical improvements as well as policy and transit recommendations. The physical improvements were identified in terms of individual intersection needs, larger roadway needs, bike/pedestrian needs, and potential Cedar Bayou crossings. Long-term intersection improvements include bridge construction over Cedar Bayou, railroad grade separation, minor at-grade capacity improvements, and signal installation. Schematic designs for key intersections were presented, including an overpass at FM 565 & FM 1405. An overview of the identified long-term roadway needs was shown including potential new connections, roadway widenings, access management treatments, and proposed Cedar Bayou crossings. Three separate alternatives for potential East/West crossings over the bayou were presented in more detail. Estimated quantities for infrastructure and an estimated cost were compared for each of the three options. Long-term policy

recommendations highlighted a need for complementary policies, ordinances, and economic strategies between Chambers and Harris County as well as between Mont Belvieu and Baytown.

Estimated Plan Costs
High-level cost estimates were prepared for the proposed recommendations and presented during the meeting.
- Short-term: $15-20 Million
- Long-term: $670-790 Million

Anticipated Plan Benefits
Based on the physical recommendations proposed for the study, benefits were measured based developed models and on published data from the Transportation Research Board and National Safety Council. These benefits include: reduced travel time and improved speed during peak periods, annual travel time savings, annual crash cost savings, and reduction in emissions leading to improved air quality. Other benefits to the proposed recommendations include improved transits services for elderly and disabled, and improved bike/pedestrian facilities.

Comments
Attendees were encouraged to fill out comment cards and mark on the printed roll plots at the end of the presentation. A few questions and minor comments were made during the actual presentation which have been recorded and will be included in the report.

In the days following the public meeting, other comments were submitted via email and through the project website. One of the main themes to the comments made after the meeting pertained to the recommended Cedar Bayou Crossing alternatives. These concerns have been documented and will be addressed in the report.

- **Action Items to Complete Prior to Next Steering Committee Meeting**
  - Process final comments from public meeting
  - Last Steering Committee Meeting - February
  - Finalize Report

Attachments: Sign-In Sheet
Meeting presentation

cc: Stephan Gage
Francis Rodriguez
Alyssa Thompson
Payton Arens

SH 146 Subregional Study
Public Meeting
Maranatha Church
12319 SH 146, Mont Belvieu, TX 77580
(Photos may be taken and used for marketing purposes)

DATE: Thursday, January 11, 2017 **TIME:** 6:00 - 7:30 P.M.

NAME (Check if Elected Official) ☑	City of Residence/Business	EMAIL	How Did You Learn of This Meeting?
☑ Paul Newman	Beach City	jpnewman@hughes.net	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other: Email
☐ Lucio Ramos	Liberty	lucio.ramos@txdot.gov	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other: e-mail
☐ Cesar Morales	Cove	J.morales.cesar@gmail.com	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:
☐ Cesar Morales JR.	Cove	" "	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other: LAB
☐ Omar De Luna	Libirty	Omar.X.DeLuna@txdot.gov	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other: Email
☐ Ricardo Villegrand	COMB	rvillegrand@exxonmobil.com	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other: Email (steering committee)
☐			Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:

TX DOT
* Send Lobbyist attendance

SH 146 Subregional Study
Public Meeting
Maranatha Church
12319 SH 146, Mont Belvieu, TX 77580
(Photos may be taken and used for marketing purposes)

DATE: Thursday, January 11, 2017 **TIME:** 6:00 - 7:30 P.M.

NAME (Check if Elected Official) ☑	City of Residence/Business	EMAIL	How Did You Learn of This Meeting?
☐ Eric + Amy Ford	Baytown	ericsford@yahoo.com	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other: Mailer
☐ Noel Salac	TXDOT	NOEL.SALAC@TXDOT.GOV	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other: BCCC
☐ Michael Pinder	Baytown	michael.pinder@baytown.com	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other: BCCC
☐ Tanya Robertson	TXDOT HD 128	tanya.robertson@house.texas.gov	Word of Mouth, Website (mail), Social Media, Legal Notice, Dynamic Board Sign, Other: E.O letter
☐ Mayes Middleton	Wallisville	mayes.middleton@gmail.com	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other: Emails
☐ DAN SUFAK	BAYTOWN	DSUFAK@EARTHLINK.NET	Word of Mouth, Website (MB), Social Media, Legal Notice, Dynamic Board Sign, Other:
☐ Alan Rubinstein	H-GAC	alan.rubinstein@h-gac.com	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:

Ken Fickes
Bobby Hall
Commissioner Senac

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SH 146 Subregional Study
Public Meeting
Maranatha Church
12319 SH 146, Mont Belvieu, TX 77580
(Photos may be taken and used for marketing purposes)

DATE: Thursday, January 11, 2017 **TIME:** 6:00 - 7:30 P.M.

NAME (Check if Elected Official) ☑	City of Residence/Business	EMAIL	How Did You Learn of This Meeting?
☐ GUIDO PERSIANI	BEACH CITY	GUIDO.PERSIANI@COVESTRO.COM	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other: EMAIL
☐ JASON RICHER	Mont Belvieu		Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:
☐ AYO JIBOWU	H-GAC	ayo.jibowu@h-gac.com	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:
☐			Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:
☐			Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:
☐			Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:
☐			Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:

SH 146 Subregional Study
Public Meeting
Maranatha Church
12319 SH 146, Mont Belvieu, TX 77580
(Photos may be taken and used for marketing purposes)

DATE: Thursday, January 11, 2017 **TIME:** 6:00 - 7:30 P.M.

NAME (Check if Elected Official) ☑	City of Residence/Business	EMAIL	How Did You Learn of This Meeting?
☐ Emily Russell	ExxonMobil	emily.russell@exxonmobil.com	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:
☐ Billy Combs	Beach City	Mayor@beachcity.tx.us	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:
☐ Bart Mitchell	Mont Belvieu	bmitchell1989@yahoo.com	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:
☐ Barbara Koslov	Houston	barbara.koslov@cje.net	Word of Mouth, Website (steering committee), Social Media, Legal Notice, Dynamic Board Sign, Other:
☐ Jezzi Alonzo	Dayton	jezzi_alonzo@yahoo.com	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:
☐ Kyle Diamond	Beach City		Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:
☐			Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:

SH 146 Subregional Study
Public Meeting
Maranatha Church
12319 SH 146, Mont Belvieu, TX 77580
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DATE: Thursday, January 11, 2017 **TIME:** 6:00 - 7:30 P.M.

NAME (Check if Elected Official) ☑	City of Residence/Business	EMAIL	How Did You Learn of This Meeting?
☐ Marian Sauls	BAYTOWN	MARIANSUE@HSN.COM	Word of Mouth, Website, Social Media (EMAIL), Legal Notice, Dynamic Board Sign, Other: MAIL
☐ AJAY SHAKYAVER	CITY OF BAYTOWN	ajay.shakyaver@baytown.org	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other: CVB of Baytown
☐ Ryan Carusi	City of Baytown	ryan.carusi@baytown.com	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:
☐ JUSTIN CHRISTMAS	MT BELVIEU	jchristmas224@yahoo.com	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:
☐ Kelly Kennedy	City of MBelvieu	Kkennedy@MtBelvieu.com	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other:
☐ CHRIS CANVIS	CITY OF BAYTOWN	" "	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other: Email
☑ GARY NELSON	County Commissioner	gnelson@chamberstx.gov	Word of Mouth, Website, Social Media, Legal Notice, Dynamic Board Sign, Other: letter E.O

Public Meeting 1 – Comments

Comments Received Via Email

Good morning,
I live in the Tanglewilde Subdivision located two miles south of IH-10 and here are my concerns:

1. Too much semi-truck freight traffic.
2. Need to stop hazards chemicals traffic because of new school, homes and business near the highway.
3. Drivers are passing using the center turning lane. We have almost been hit head on waiting to turn in our subdivision three times and there have been some bad wrecks there.
4. Driving south from I-10 on highway 146 we need a lane to turn in Tanglewilde Subdivision because people have almost got rear ended trying to turn in.
5. Lower speed limit again. When the speed limit was 55mph they were driving 65mph+ and now at 50mph they drive 60+.
6. Add one or two more red lights on Hwy. 146 south One at Tanglewilde Subdivision would help to slow traffic down also.

Larry Zajicek

The only permanent solution for traffic reduction on SH-146 heading north out of Baytown is to build an elevated 4.5-mile section from the train trestle near the Pinehurst subdivision to Maranatha Temple on the far side of old Mont Belvieu. See attached photo with GPS Coordinates.
In my opinion, it is the only option that will allow the mass movement of daily transportation and especially in a time of hurricane and other emergencies.

Bert Marshall

Public Comments Received on Comment Cards

What and where are the worst mobility issues in the study area?

Can I get a map of the Mont Belvieu Baytown Area?
H.L.C

Need turn lane at elementary school on 146. Need another crossing over Cedar Bayou. Widen 146. Complete 146 where it ends and goes to feeder roads. Force trucks to use 99.
No name documented

Railroad crossing on FM 565 @ 1405 and railroad crossing at 1942 and Hatcherville Rd. **Wish List:** FM 565 Overpass over railroad and Hwy 146 @ I-10 congestion
Ray Turner- Chambers County EMC

Under use of 99. **Wish List:** Reduce or eliminate tolls on 99
Marian Sparks

1. Hwy 146 @ I-10 need greater through pat.
2. Increase usage of SH-99 by trucks and autos
3. FM 565 South at FM 1405 – train blocks traffic
4. Need East/West corridor between Massey Tompkins & I-10 that crosses Cedar Bayou and intersects with 146.
5. Design the radii for tractor trailer rigs where we expect heavy truck traffic
6. Eliminate the center lane on 146 – add deceleration lanes where appropriate
   Wish List: FM 565 rail crossing near 1405 need bridge. Train blocks traffic for extended periods

No name documented

Divert truck traffic via 99 and 330. Extra traffic lights on 146 south of I-10.
No name documented

State Highway 146 Subregional Study

Comment Card

What and where are the worst mobility issues in the study area?

CAN I GET A MAP OF THE MONT BELVIEW BAYTOWN AREA

H.L.C.
P.O. Box 1139
MONT BELVIEW, TX 77580

Wish List .... *If you could see **3 mobility issues** (within the study area) alleviated, regardless of cost, what would it be?*

1.
2.
3.

More on the Back

State Highway 146 Subregional Study

Comment Card

What and where are the worst mobility issues in the study area?

Need turn lane @ elementary school on 146
Need another crossing over Cedar Bayou
Widen 146
Complete 146 where it ends and goes to the feeder roads
Force trucks to use 99

Wish List .... *If you could see **3 mobility issues** (within the study area) alleviated, regardless of cost, what would it be?*

1.
2.
3.

More on the Back

State Highway 146 Subregional Study

Comment Card

What and where are the worst mobility issues in the study area?

Railroad crossin on FM 565 @ 1405

Railroad Crossing on FM 1942 @ Hatcheneville Rd.

Wish List .... *If you could see **3 mobility issues** (within the study area) alleviated, regardless of cost, what would it be?*

1. FM565 - Overpass over railroad
2. Hwy 146 @ I-10 congestion
3.

More on the Back

Additional Comments

Thank you!

If we have questions regarding your input, what is the best way to contact you?

Name: Roy Turner - Chambers County EMC

Email/phone: rturner@chamberstx.gov

More Information: hgacmpo.com/sh146.com

6/2017

State Highway 146 Subregional Study

Comment Card

What and where are the worst mobility issues in the study area?

underuse of 99

Wish List .... *If you could see **3 mobility issues** (within the study area) alleviated, regardless of cost, what would it be?*

1. Reduce or eliminate tolls on 99
2.
3.

More on the Back

Additional Comments

Thank you!

If we have questions regarding your input, what is the best way to contact you?

Name: MARIAN SPARKS

Email/phone: MARIANSUE@MSN.COM

More Information: hgacmpo.com/sh146.com

6/2017

State Highway 146 Subregional Study

Comment Card

What and where are the worst mobility issues in the study area?

(A) Hwy 146 @ I-10 Need greater through put.
(B) Increased usage of SH-99 by Trucks & AUTOS.
(C) FM565 South at FM1405 - Train block Traffic - Union Pacific
(D) Need East West Corridor between Massey Tompkins & I-10 That Crosses Cedar Bayou. and intersects with Hwy 146.
(E) Design the radii for Tract a Trailer rigs where we Expect heavy Truck Traffic.
(F) Eliminate the Center lane on 146 - add deceleration lanes where appropriate.

Wish List .... *If you could see **3 mobility issues** (within the study area) alleviated, regardless of cost, what would it be?*

1. FM565 Rail Crossing Near 1405 Needs Bridge Train blocks Traffic for extended Periods.
2.
3.

More on the Back

State Highway 146 Subregional Study

Comment Card

What and where are the worst mobility issues in the study area?

Divert truck traffic via 99 and 330
Extra Traffic Lights on 146 South of I-10

Wish List .... *If you could see **3 mobility issues** (within the study area) alleviated, regardless of cost, what would it be?*

1.
2.
3.

More on the Back

Public Meeting 2 – Comments

From: Barbara Lawrence <jeana.lawrence@me.com>
Date: January 31, 2018 at 10:54:07 PM CST
To: <ken.fickes@csd.hctx.net>
Subject: SH146 Subregional Study
Hi Mr. Fickes,

I'm Barbara Lawrence, a lifelong Baytown resident, and I would like to comment on the State Highway 146 Subregional Study proposed short-term and long-term recommendations.

As a reference, I am a Computer and Electrical Engineer who owns a consulting practice that works with clients all over the world to increase their influence through marketing technologies. I have a vested interest in this studies' recommendations as I am a frequent, daily traveler on 146, I-10, Loop 201 and I live in the ETJ of Baytown that would be adversely affected by the recommended Cedar Bayou Crossing Alternatives.

Here are some of my concerns regarding the recommendations made in this study as detailed on the HGACMPO.com/SH146 site:

1. Recommendations to Resolve SH146 Congestion

The crux of the short-term recommendations to resolve congestion call for additional signals, synchronized signal timing and turning lanes. I might suggest that none of these options will provide enough remediation for the cost. The study area covers an area of SH146 that does not have proper overpasses, ramps, exits and feeder roads. Until an elevated roadway is provided for North End of 146 from Ferry Road to 1-10, your recommendations are merely a bandaid to fix a problem that needs stitches. Where this type of roadway has been implemented on 146 from the La Porte area through Baytown up until Ferry Road, there is very little congestion to speak of at any time of the day.

2. Additional Road Connections and Signals

The main issue appears to be freight traffic moving from the Fred Hartman Bridge to I-10. Adding additional East to West Road connections has not alleviated the traffic congestion. It has only added to it. Where is the data that shows this will not further increase the problem.

3. Underutilization of SH 99

While it is becoming a fantastic route to drive, SH 99 remains a practical ghost town because studies like this one failed to take into consideration that even freight trucks do not want to travel so far east from SH146 simply to head to I-10. Again, elevating SH146 with proper overpasses and feeder roads (which has been done to the rest of the road south to the Fred Hartman) solves the glaring problem.

4. Additional Cedar Bayou Crossing

Your study references that you have data justifying yet another road connection to SH146 via a Cedar Bayou Crossing. Where is this data? The Massey Tompkins East to West connection was constructed and is vastly underutilized. Now, we want to tear down people's homes and plow through their property to create another semi-used connection? During peak times of the day, the major congestion occurs on roads heading North/South. Garth Road, North Main (somewhat), Sjolander and SH146 are packed during rush hour with people trying to move between I-10 and the Fred Hartman. You do not see congestion East/West.

When making a recommendation to use eminent domain to destroy home and property for increased mobilization, the data should be copious and obvious for its construction. One should consider that this crossing is a recommendation for the betterment of people who chose
to live in a neighborhood directly connected to a busy highway to more easily access select areas of town by plowing through the properties of those who purposely chose to live in quiet neighborhoods where one can reasonably expect there to never be encroachment of an unneeded, noisy highway coming through said neighborhood.

5. Cedar Bayou Crossings B & C Are Non-Starters - You may also want to consider that crossings B and C drive right through several of the most expensive properties in Baytown. You could reasonably expect that these residents would not be able to be fully compensated for the hundreds of thousands of dollars they've put into their properties over the years. Many of these homes rarely come up for sale because they are high-end, prime properties that could not be sold for the amount home owners have chosen to invest in them. This would be a terrible mistake.

You may also want to consider that crossings B and C drive right through several of the most expensive properties in Baytown. You could reasonably expect that these residents would not be able to be fully compensated for the hundreds of thousands of dollars they've put into their properties over the years. Many of these homes rarely come up for sale because they are high-end, prime properties that could not be sold for the amount home owners have chosen to invest in them. This would be a terrible mistake. In addition, Cedar Bayou Crossings B and C are less than and slightly more than a mile North from the underutilized the crossing of Massey Tompkins with SH146.

All of the growth and congestion occurs as you move North (and will continue to be this way as Baytown grows this direction). Cedar Bayou Crossing (although I see no data suggesting it's benefit), at least makes use of (1) a 4-lane road that is already crowded during school begin/end hours and during sporting events at Stallworth. People who have chose to live on this road already have an expectation for it to be chaotic and busy at times. It also avoids breaking up large neighborhoods as it bypasses them through clearer land, fewer quantity and less expensive homes.

How can any of these crossings be considered without the proper data presented as to their need and serious consideration of how it would disrupt the lives of the close-knit neighborhoods that felt they were safely tucked away from this type of highway encroachment?

If possible, I would like to see the data on the Cedar Bayou Crossing Alternatives specifically and understand why seeking proper funding for solving the main problem of SH146 not being an elevated section of highway is not the main priority. Once this is done, I believe the analysis will show that the main congestion and safety issue are solved with no further action needed.

Thank you for considering my comments. How can I become more involved in this analysis to better understand and see the research?

Thank you for your help,
Barbara Lawrence
832-414-1774
jeana.lawrence@me.com

From: Bryan Nethery [mailto:wbnethery3@gmail.com]
See Also Attachment 1
Sent: Wednesday, January 31, 2018 8:30 AM
To: Mullins, Carlene <Carlene.Mullins@h-gac.com>
Subject: H-GAC SH146 Subregional Study

Ms. Mullins,

I live in the Extra-Territorial Jurisdiction of the City of Baytown, on the Harris County side of Cedar Bayou. I am a life-long resident of Baytown, and until 2007, had always lived inside city limits. My family moved to our current address (3939 Roberts Blvd) at that time, drawn by the opportunity to build on a larger piece of land and be "off the beaten path".

It was brought to my attention by Ms. Tiffany Foster on Friday, January 26, that the H-GAC SH146 Subregional Study included a sub-section on a Cedar Bayou road crossing (CBRC) between Massey-Tompkins and Interstate 10. A neighbor had heard some rumblings through the grapevine, but I looked at the HGAC website for more information, and also contacted Steve DonCarlos (a personal friend who also happens to be the mayor). Through publicity in the Baytown Sun, I was aware of the public meeting held at Maranatha Temple on January 11, but was led to believe that the CBRC was not in scope. Nowhere on the website was the CBRC mentioned (before the meeting), and Steve didn't think an east-west roadway was part of the study. Unfortunately, I missed the opportunity to participate and must use email and the website form to register my concerns with the plan.

The concept of a CBRC has been around since the early '70's. I found a City Council resolution from 1971 that voiced support for an extension of Baker Rd. from N. Main all the way across the bayou to SH146. That was when most of the east-west corridors in Baytown were all still just two-lane county roads with ditches on both sides. It was also when most of the proposed route was wooded acreage. That concept has hung around as the city has grown, and was included in a Master Plan which the city published in 2007. As an outgrowth of that effort, it was brought forward with more detail in 2012-13 by the COB Planning Department as part of its Baytown Mobility Plan. The work done by the consulting firm was voluminous, but lacking in any sort of reality check.

I am attaching my comments to city council from that time frame for your reference, as it bears to some degree on the work I've seen presented by H-GAC. In that instance, my neighbors and I became aware of the draft Mobility Plan simply by chance, but prior to its review with City Council (January 24, 2013). Although we are not represented by anyone on council, our comments were received and acted upon. The BMP was revised to remove all references to a CBRC. The city manager at the time (Bob Leiper), as well as members of his staff, assured us that we would be given opportunity to engage with their offices in conjunction with any future work done to revisit the subject. Sadly, those assurances lasted only as long as Bob was in the job. While the H-GAC study is not a direct work of the City of Baytown, they have several members on the steering committee, some of whom were around when this was last addressed.

The majority of the planning presented in the H-GAC website is spot-on and addresses significant needs as they relate to the SH146 corridor. Most of the people who I know that support the idea of a CBRC are simply frustrated with the traffic jams and how long it takes to get from their homes along 146 or further east into the commercial section of Baytown (i.e. Garth Rd.). When you implement all of the improvements recommended to SH146, I suspect their concerns will largely be addressed.

Your presentation lays out a table of "Identified Issues" and the CBRC is listed among those with an X under all four categories. While I'm not surprised that the Steering Committee and Stakeholders would want greater connectivity, I'm very curious to know how you gathered information from the Public and what Data was used to conclude a CBRC is necessary. Most of the congestion issues in Baytown are north-south flow (Garth, 146). As previously mentioned, I know folks east of the bayou would like a faster route to town, but what input did you gather from those of us who live west of the bayou, especially those of us whose properties are near one of your proposed crossings? Also, what data do you have to support this concept? I travel on Massey-Tompkins daily, and my wife works at the elementary school sitting at the intersection of Raccoon and Massey-Tompkins. Neither of us have observed the kind of congestion that would imply greater east-west street capacity is needed. What other data are you looking at to substantiate this concept as a need?

My wife and I, as well our neighbors, do not want the atmosphere we've chosen to build homes and raise families in to be compromised by a high-traffic street installed simply for the convenience of a population unaffected by its construction. I live within a block of Option B, and my parents live within a block of Option C. We object to the changes in the quality of life, as well as the number of homes which would need to be acquired and demolished, in order to implement either of these planned routes. Option A appears to have the least impact on neighborhoods, but I cannot honestly say I've studied it in as great a level of detail.

Please feel free to email or call me if you would like to discuss this further.

Thank you,

Bryan Nethery
wbnethery3@gmail.com
713-492-1373

From: Brenda Stone [mailto:bccstone@gmail.com]
Sent: Wednesday, January 31, 2018 3:18 PM
To: Koslov, Barbara (County Judge's Office) <Barbara.Koslov@cjo.hctx.net>
Subject: Cedar Bayou Crossing

I am concerned that a bridge across Cedar Bayou will not only add lots of traffic to the quiet and peaceful area, but will act as some sort of barrier of water as the Hwy 146 bridge near Massey Tompkins did during Harvey. As you know this resulted in a tremendous amount of homes flooding up and down Cedar Bayou.
There is also a train issue. The train daily blocks Cedar Bayou Lynchburg and Archer Road near Sjolander Road. This is often for periods of time.

Thank you for reading my concerns.

Brenda Stone
5106 Forest Trail
Baytown, Texas. 77521

From: Betancourth, Heather L [mailto:heather.betancourth@cpchem.com]
Sent: Sunday, January 28, 2018 9:36 PM
To: PublicComments <publiccomments@h-gac.com>
Subject: Prefer option c

I like option C the best. Blue Heron would be the best choice for a new road/Bridge.

From: Jfree64041 [mailto:jfree64041@aol.com]
Sent: Tuesday, January 30, 2018 10:22 AM
To: Mullins, Carlene <Carlene.Mullins@h-gac.com>
Subject: cedar bayou bridge

Carlene,

my name is joe freeman and i just learned of new bridge project. As it appears, I would greatly affected by the "C" option. I own 5711 W. Twisted oak and 5727 cedar view properties and would like to have found out about this before so I might have been able to at least attended to Jan 11 meeting. I would appreciate any additional info and updates as I am nearing 6 mo of rehabing my house at great expense and effort. I hope it all for naught.

sincerely,

joe freeman
8324573465

From: Melissa B [mailto:melb1025@gmail.com]
Sent: Tuesday, January 30, 2018 12:45 PM
To: Mullins, Carlene <Carlene.Mullins@h-gac.com>
Cc: bboudreaux@brockgroup.com
Subject: SH 146 Subregional Study - Cedar Bayou Crossing

Hi Carlene,

After reviewing the proposal for the Cedar Bayou Crossing prospects, we would like to formally protest ‘option B’ as well as ‘option C’. Both of these plans would infringe upon a massive amount of homes as well as a way of life for hundreds of families. Our area (in B) does not have sidewalks nor bike trails so our roads are utilized for these purposes also. If the goal is a straight shot from 146 to N Main, Option A appears to be the best plan with the least amount of stop signs, but more importantly avoiding most of the homes/families.

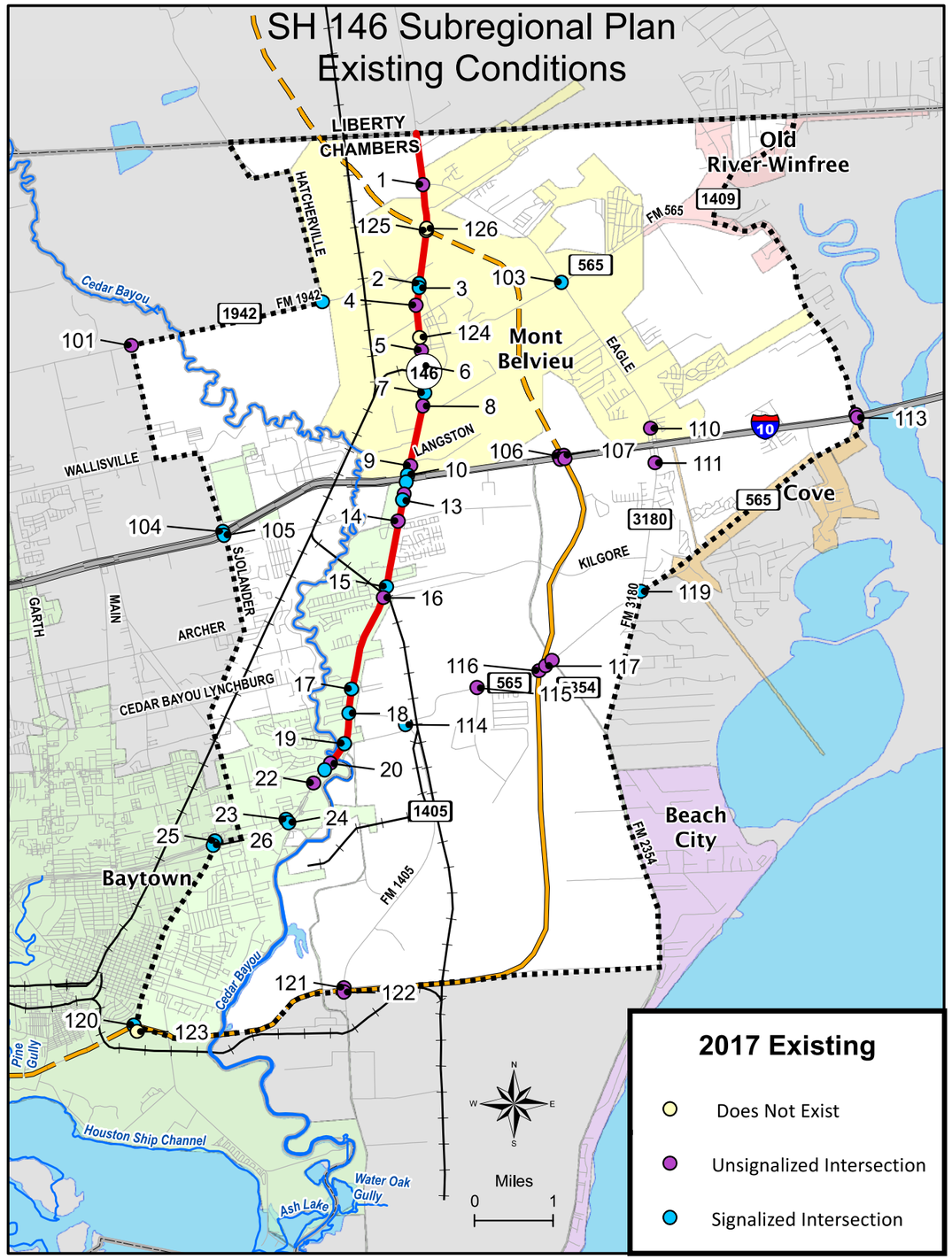
We are unable to attend the community forum and would like to voice our opinion on this.
Please consider this email our vote

Thank you for your time ~

Blaine & Melissa Boudreaux
3811 Roberts Blvd

2. TRAFFIC OPERATIONS

Traffic Data Summary



Node	Intersection	Geometry	Signalized	Control
1	SH 146 @ Eagle Drive	T	N	TWSC
2	SH 146 @ FM 1942	Off	Y	Signal
3	SH 146 @ Loop 207 N	Off	Y	Signal
4	SH 146 @ Equistar Chemicals Drwy	T	N	TWSC
5	SH 146 @ Williams St	T	N	TWSC
6	SH 146 @ Chevron Truck Drwy	T	N	TWSC
7	SH 146 @ LP 207/Targa Drwy	Skew	Y	Signal
8	SH 146 @ Targa Employee Parking/Sun Oil Rd	Off	N	TWSC
9	SH 146 @ Truck Stop Drwy	4	N	TWSC
10	SH 146 @ I-10 WBFR	Diamond	Y	Signal
11	SH 146 @ I-10 EBFR	Diamond	Y	Signal
12	SH 146 @ Walmart Drwy	T	N	TWSC
13	SH 146 @ Main Walmart Drwy	T	Y	Signal
14	SH 146 @ Old Needlepoint Rd	Skew	N	TWSC
15	SH 146 @ Kilgore Pkwy	T	Y	Signal
16	SH 146 @ Pinehurst St	T	N	TWSC
17	SH 146 @ Clark Elementary School Drwy/Devinwood Dr	4	Y	Signal
18	SH 146 @ FM 1405/N Twisted Oak St	4	Y	Signal
19	SH 146 @ FM 565	TSkew	Y	Signal
20	SH 146 @ Tompkins Dr	T	N	TWSC
21	SH 146 @ Massey Tompkins Rd	TSkew	Y	Signal
22	SH 146 @ Ferry Rd	T	N	TWSC
23	SH 146 SB @ N. Alexander Dr	Diamond	Y	Signal
24	SH 146 NB @ N. Alexander Dr	Diamond	Y	Signal
25	N Alexander Dr (SH 146B) @ SH 146 WBFR	Diamond	Y	Signal
26	N Alexander Dr (SH 146B) @ SH 146 EBFR	Diamond	Y	Signal
101	FM 1942 @ Hadden Rd	4	N	TWSC
102	FM 1942 @ Hatcherville Rd	T	Y	Signal
103	FM 565 @ FM 3360	4	Y	Signal
104	Sjolander Rd @ I-10 WBFR	Diamond	Y	Signal
105	Sjolander Rd @ I-10 EBFR	Diamond	Y	Signal
106	SH 99 SBFR @ I-10 WBFR	BoxDiamond	N	AWSC
107	SH 99 NBFR @ I-10 WBFR	BoxDiamond	N	AWSC
108	SH 99 SBFR @ I-10 EBFR	BoxDiamond	N	AWSC
109	SH 99 NBFR @ I-10 EBFR	BoxDiamond	N	AWSC
110	Eagle Drive (FM 3180) @ I-10 WBFR	4	N	TWSC
111	Eagle Drive (FM 3180) @ I-10 EBFR	4	N	TWSC
112	FM 565 @ I-10 WBFR	Diamond	N	AWSC
113	FM 565 @ I-10 EBFR	Diamond	N	AWSC
114	FM 565 @ FM 1405	4	Y	Signal
115	FM 565 @ Ameriport Pkwy	4	N	TWSC
116	FM 565 @ SH 99 SBFR	Diamond	N	AWSC
117	FM 565 @ SH 99 NBFR	Diamond	N	AWSC
118	FM 565 @ FM 2354 (S Cotton Lake Road)	T	N	TWSC
119	FM 565 @ Eagle Drive (FM 3180)	Skew	Y	Signal
120	SH 146B @ SH 99	T	Y	Signal
121	FM 1405 @ SH 99 WBFR	Diamond	N	AWSC
122	FM 1405 @ SH 99 EBFR	Diamond	N	AWSC
123	SH 146B & Future SH 99 FR	Does Not Exist		
124	SH 146 & FM 565			
125	SH 146 & Future SH 99 FR			
126	SH 146 & Future SH 99 FR			

Existing Volume Metrics										
Node	Intersection	Approx Daily Volume	% Trucks	AM Peak	AM Volume	AM PHF	PM Peak	PM Volume	PM PHF	Ann_Gro
1	SH 146 @ Eagle Drive	19,200	5.1%	6:30 AM	1,203	90.04%	5:00 PM	1,919	77.13%	4.5%
2	SH 146 @ FM 1942	21,900	6.1%	6:30 AM	1,393	91.40%	5:00 PM	2,185	79.63%	4.5%
3	SH 146 @ Loop 207 N	21,700	6.0%	6:30 AM	1,364	91.91%	5:00 PM	2,167	79.90%	4.5%
4	SH 146 @ Equistar Chemicals Drwy	11,200	9.0%	6:30 AM	932	91.02%	5:00 PM	1,120	82.11%	4.5%
5	SH 146 @ Williams St	19,900	6.9%	6:30 AM	1,362	82.05%	5:00 PM	1,992	82.45%	4.5%
6	SH 146 @ Chevron Truck Drwy	19,800	6.5%	6:30 AM	1,314	89.75%	5:00 PM	1,984	86.71%	4.5%
7	SH 146 @ LP 207/Targa Drwy	23,500	5.1%	6:30 AM	1,891	87.81%	5:00 PM	2,348	85.94%	4.5%
8	SH 146 @ Targa Employee Parking/Sun Oil Rd	26,300	5.5%	6:30 AM	1,911	93.13%	5:00 PM	2,626	83.84%	4.5%
9	SH 146 @ Truck Stop Drwy	29,000	5.2%	6:30 AM	2,056	91.30%	5:00 PM	2,903	84.49%	4.5%
10	SH 146 @ I-10 WBFR	39,700	6.0%	6:30 AM	2,959	90.66%	5:00 PM	3,966	96.92%	2.0%
11	SH 146 @ I-10 EBFR	43,500	6.7%	6:30 AM	2,843	92.91%	5:00 PM	4,354	95.73%	2.0%
12	SH 146 @ Walmart Drwy	33,300	6.5%	6:30 AM	2,382	94.22%	5:00 PM	3,333	95.23%	3.0%
13	SH 146 @ Main Walmart Drwy	35,000	6.3%	6:30 AM	2,379	92.78%	5:15 PM	3,499	96.76%	3.0%
14	SH 146 @ Old Needlepoint Rd	32,500	6.6%	6:30 AM	2,322	89.86%	5:15 PM	3,249	95.00%	3.0%
15	SH 146 @ Kilgore Pkwy	35,500	6.8%	6:30 AM	2,390	92.21%	5:15 PM	3,548	93.57%	3.0%
16	SH 146 @ Pinehurst St	35,900	6.7%	6:30 AM	2,432	94.26%	5:15 PM	3,592	95.53%	3.0%
17	SH 146 @ Clark Elementary School Drwy/Devinwood Dr	36,300	6.6%	6:30 AM	2,495	96.11%	5:15 PM	3,626	92.78%	3.0%
18	SH 146 @ FM 1405/N Twisted Oak St	38,300	7.3%	6:30 AM	2,416	89.22%	5:00 PM	3,826	97.21%	3.0%
19	SH 146 @ FM 565	44,500	6.0%	6:30 AM	2,927	89.79%	5:00 PM	4,451	97.78%	3.0%
20	SH 146 @ Tompkins Dr	35,700	5.7%	6:30 AM	2,951	92.68%	5:00 PM	3,574	84.13%	3.0%
21	SH 146 @ Massey Tompkins Rd	43,700	6.3%	6:30 AM	2,913	89.36%	5:00 PM	4,367	96.79%	3.0%
22	SH 146 @ Ferry Rd	38,800	6.6%	6:30 AM	2,656	85.35%	5:00 PM	3,884	98.08%	3.0%
23	SH 146 SB @ N. Alexander Dr	22,300	6.6%	7:00 AM	1,523	92.19%	5:15 PM	2,226	95.45%	3.0%
24	SH 146 NB @ N. Alexander Dr	21,900	6.6%	6:30 AM	1,387	81.97%	5:00 PM	2,189	94.35%	3.0%
25	N Alexander Dr (SH 146B) @ SH 146 WBFR	22,500	1.8%	7:30 AM	1,535	94.75%	5:00 PM	2,254	96.00%	3.0%
26	N Alexander Dr (SH 146B) @ SH 146 EBFR	28,400	1.8%	7:30 AM	1,781	95.14%	5:00 PM	2,843	93.64%	3.0%
101	FM 1942 @ Hadden Rd	13,000	3.8%	6:30 AM	652	64.94%	5:00 PM	1,301	71.33%	4.5%
102	FM 1942 @ Hatcherville Rd	13,800	5.2%	6:30 AM	903	71.89%	5:00 PM	1,377	87.15%	4.5%
103	FM 565 @ FM 3360	18,900	1.5%	6:30 AM	1,351	89.35%	5:00 PM	1,893	85.73%	7.0%
104	Sjolander Rd @ I-10 WBFR	26,200	2.4%	6:30 AM	1,134	59.68%	5:00 PM	2,619	88.96%	2.0%
105	Sjolander Rd @ I-10 EBFR	15,700	2.5%	6:30 AM	923	61.53%	5:00 PM	1,565	93.60%	2.0%
106	SH 99 SBFR @ I-10 WBFR	5,800	8.6%	6:30 AM	465	90.82%	5:00 PM	580	87.35%	2.0%
107	SH 99 NBFR @ I-10 WBFR	5,000	7.6%	6:30 AM	391	85.75%	5:00 PM	501	84.63%	2.0%
108	SH 99 SBFR @ I-10 EBFR	5,200	10.5%	6:30 AM	424	95.50%	5:00 PM	515	79.97%	2.0%
109	SH 99 NBFR @ I-10 EBFR	7,600	8.1%	6:30 AM	262	88.51%	5:15 PM	764	92.72%	2.0%
110	Eagle Drive (FM 3180) @ I-10 WBFR	21,200	1.6%	6:30 AM	2,365	86.44%	5:00 PM	2,123	91.67%	2.0%
111	Eagle Drive (FM 3180) @ I-10 EBFR	19,800	1.8%	6:30 AM	1,618	87.55%	5:00 PM	1,978	92.60%	2.0%
112	FM 565 @ I-10 WBFR	8,700	5.9%	6:30 AM	854	88.96%	5:00 PM	865	91.63%	2.0%
113	FM 565 @ I-10 EBFR	9,300	6.6%	6:30 AM	731	85.80%	5:00 PM	933	92.93%	2.0%
114	FM 565 @ FM 1405	14,700	11.4%	6:30 AM	1,038	79.85%	5:00 PM	1,474	84.91%	3.0%
115	FM 565 @ Ameriport Pkwy	8,600	14.7%	6:30 AM	728	81.98%	5:00 PM	863	87.70%	3.0%
116	FM 565 @ SH 99 SBFR	7,600	9.9%	7:00 AM	566	88.99%	5:00 PM	764	86.82%	3.0%
117	FM 565 @ SH 99 NBFR	8,500	8.0%	7:00 AM	564	91.56%	5:00 PM	853	94.78%	3.0%
118	FM 565 @ FM 2354 (S Cotton Lake Road)	8,700	9.9%	6:30 AM	668	87.43%	5:00 PM	867	93.43%	3.0%
119	FM 565 @ Eagle Drive (FM 3180)	14,500	3.7%	6:30 AM	1,292	88.25%	5:00 PM	1,445	93.35%	3.0%
120	SH 146B @ SH 99	22,600	9.2%	6:30 AM	1,660	83.17%	5:00 PM	2,263	97.54%	3.0%
121	FM 1405 @ SH 99 WBFR	10,100	13.8%	6:30 AM	945	89.15%	5:00 PM	1,009	89.45%	3.0%
122	FM 1405 @ SH 99 EBFR	11,300	18.0%	6:30 AM	816	87.93%	5:00 PM	1,133	93.17%	3.0%

2017 Turning Movement Counts: AM Peak Hour

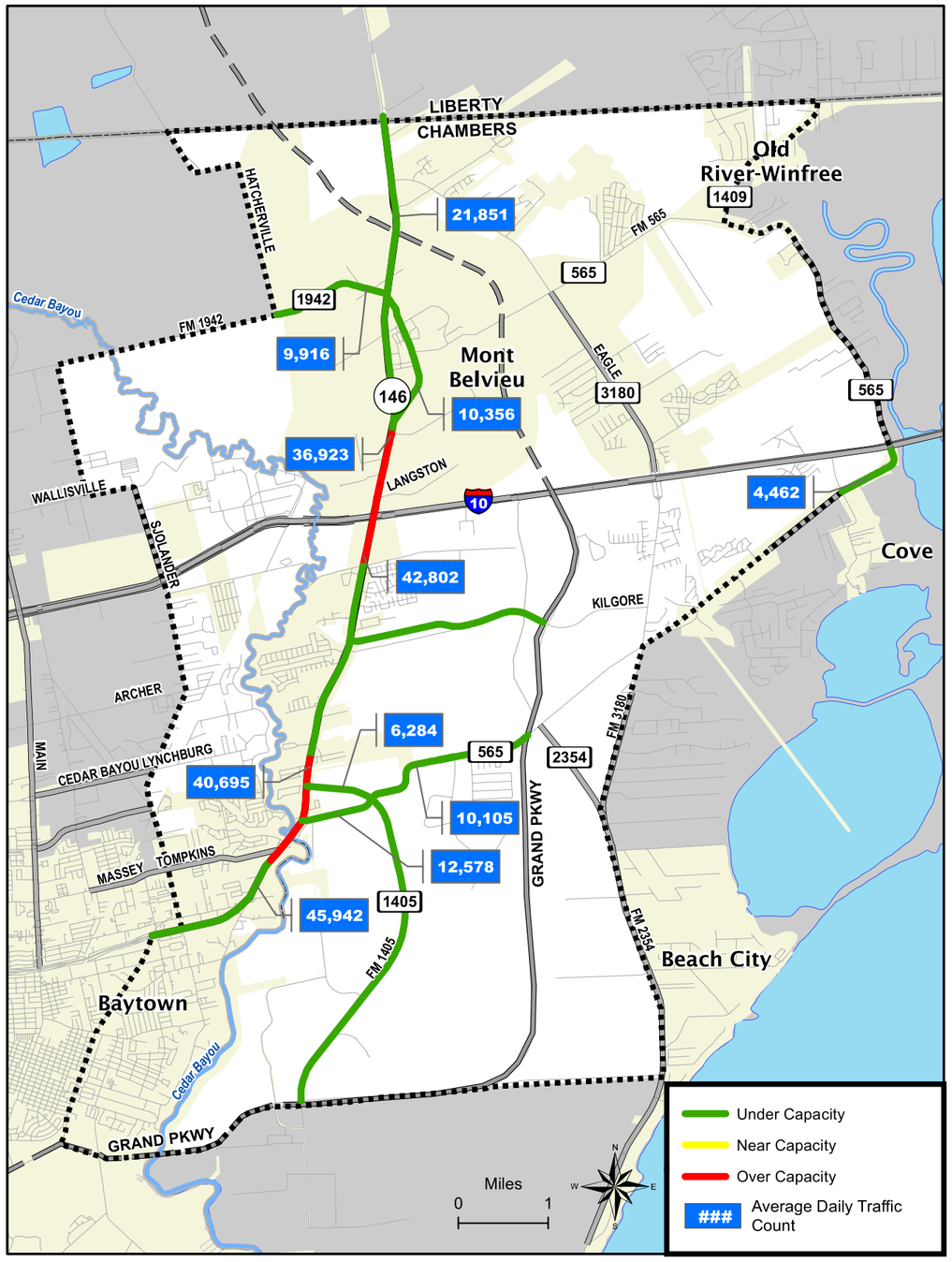
Node	Name	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
1	SH 146 @ FM 3360	101	670	0	111	0	48	0	255	18	0	0	0
2	SH 146 @ FM 1942	0	678	20	0	0	0	292	254	0	29	0	120
3	SH 146 @ Loop 207 N	53	755	0	1	0	66	0	488	1	0	0	0
4	SH 146 @ Equistar Chemicals Drwy	0	588	0	0	0	0	8	336	0	0	0	0
5	SH 146 @ Williams St	2	734	0	3	0	0	0	615	8	0	0	0
6	SH 146 @ Chevron Truck Drwy	0	721	0	0	0	0	0	591	0	1	0	1
7	SH 146 @ LP 207/Targa Drwy	6	719	18	343	4	3	53	582	186	2	0	9
8	SH 146 @ Targa Employee Parking/Sun Oil Rd	0	1016	0	0	0	0	0	894	0	0	0	0
9	SH 146 @ Truck Stop Drwy	5	1039	6	2	0	7	8	965	11	5	0	7
10	SH 146 @ I-10 WBFR	0	650	419	316	48	162	470	743	0	0	0	0
11	SH 146 @ I-10 EBFR	110	869	0	0	0	0	0	877	306	303	77	270
12	SH 146 @ Walmart Drwy	63	1070	0	6	0	115	0	1114	13	0	0	0
13	SH 146 @ Main Walmart Drwy	36	1035	0	77	0	41	0	1075	115	0	0	0
14	SH 146 @ Old Needlepoint Rd	3	1107	2	4	0	9	2	1188	1	6	0	0
15	SH 146 @ Kilgore Pkwy	14	1307	0	78	0	10	0	915	66	0	0	0
16	SH 146 @ Pinehurst St	0	1357	22	0	0	0	10	956	0	32	0	54
17	SH 146 @ Clark Elementary School Drwy/Devinwood Dr	6	1312	123	52	12	26	49	801	10	57	3	44
18	SH 146 @ FM 1405/N Twisted Oak St	204	1245	3	12	1	71	1	823	32	6	1	17
19	SH 146 @ FM 565	50	1211	0	236	0	8	0	862	560	0	0	0
20	SH 146 @ Tompkins Dr	0	1535	26	0	0	0	6	1317	0	11	0	56
21	SH 146 @ Massey Tompkins Rd	0	1273	186	1	0	0	8	1236	1	171	2	35
22	SH 146 @ Ferry Rd	0	1285	3	0	0	0	22	1283	0	0	0	63
23	SH 146 SB @ N. Alexander Dr	24	1369	30	9	11	0	0	0	0	0	35	0
24	SH 146 NB @ N. Alexander Dr	0	0	0	0	18	49	0	1225	8	29	28	0
25	N Alexander Dr (SH 146B) @ SH 146 WBFR	0	330	139	168	10	5	391	402	0	0	0	0
26	N Alexander Dr (SH 146B) @ SH 146 EBFR	77	422	0	0	0	0	0	657	88	120	90	250
101	FM 1942 @ Hadden Rd	13	1	8	4	87	11	3	7	28	36	436	18
102	FM 1942 @ Hatcherville Rd	80	0	57	0	56	264	0	0	0	343	103	0
103	FM 565 @ FM 3360	18	187	24	337	293	44	71	116	90	9	65	90
104	Sjolander Rd @ I-10 WBFR	0	64	88	69	2	167	156	563	0	0	0	0
105	Sjolander Rd @ I-10 EBFR	42	94	0	0	0	0	0	291	62	416	11	1
106	SH 99 SBFR @ I-10 WBFR	0	0	0	260	131	0	0	0	0	0	0	0
107	SH 99 NBFR @ I-10 WBFR	0	0	0	0	297	0	92	0	0	0	0	0
108	SH 99 SBFR @ I-10 EBFR	1	255	0	0	0	0	0	0	0	0	28	67
109	SH 99 NBFR @ I-10 EBFR	0	0	0	0	0	0	0	93	138	0	29	0
110	FM 3180 @ I-10 WBFR	12	292	524	3	1	308	164	912	122	0	0	27
111	FM 3180 @ I-10 EBFR	48	209	59	0	0	288	0	902	38	2	3	69
112	FM 565 @ I-10 WBFR	0	88	164	57	42	31	388	84	0	0	0	0
113	FM 565 @ I-10 EBFR	54	93	0	0	0	0	0	222	59	243	38	22
114	FM 565 @ FM 1405	57	222	35	34	47	11	0	274	129	57	171	1
115	FM 565 @ Ameriport Pkwy	1	0	21	58	304	15	16	0	3	59	127	123
116	FM 565 @ SH 99 SBFR	27	0	72	47	226	0	0	0	0	0	140	3
117	FM 565 @ SH 99 NBFR	0	0	0	0	260	118	7	0	8	19	144	0
118	FM 565 @ FM 2354	0	0	0	0	271	0	163	0	60	0	114	60
119	FM 565 @ FM 3180	70	152	103	69	142	239	7	288	42	136	37	7
120	SH 146B @ SH 99	104	273	0	515	0	57	0	173	535	0	0	0
121	FM 1405 @ SH 99 WBFR	0	106	35	30	426	13	127	205	0	0	0	0
122	FM 1405 @ SH 99 EBFR	2	134	0	0	0	0	0	113	6	219	146	195

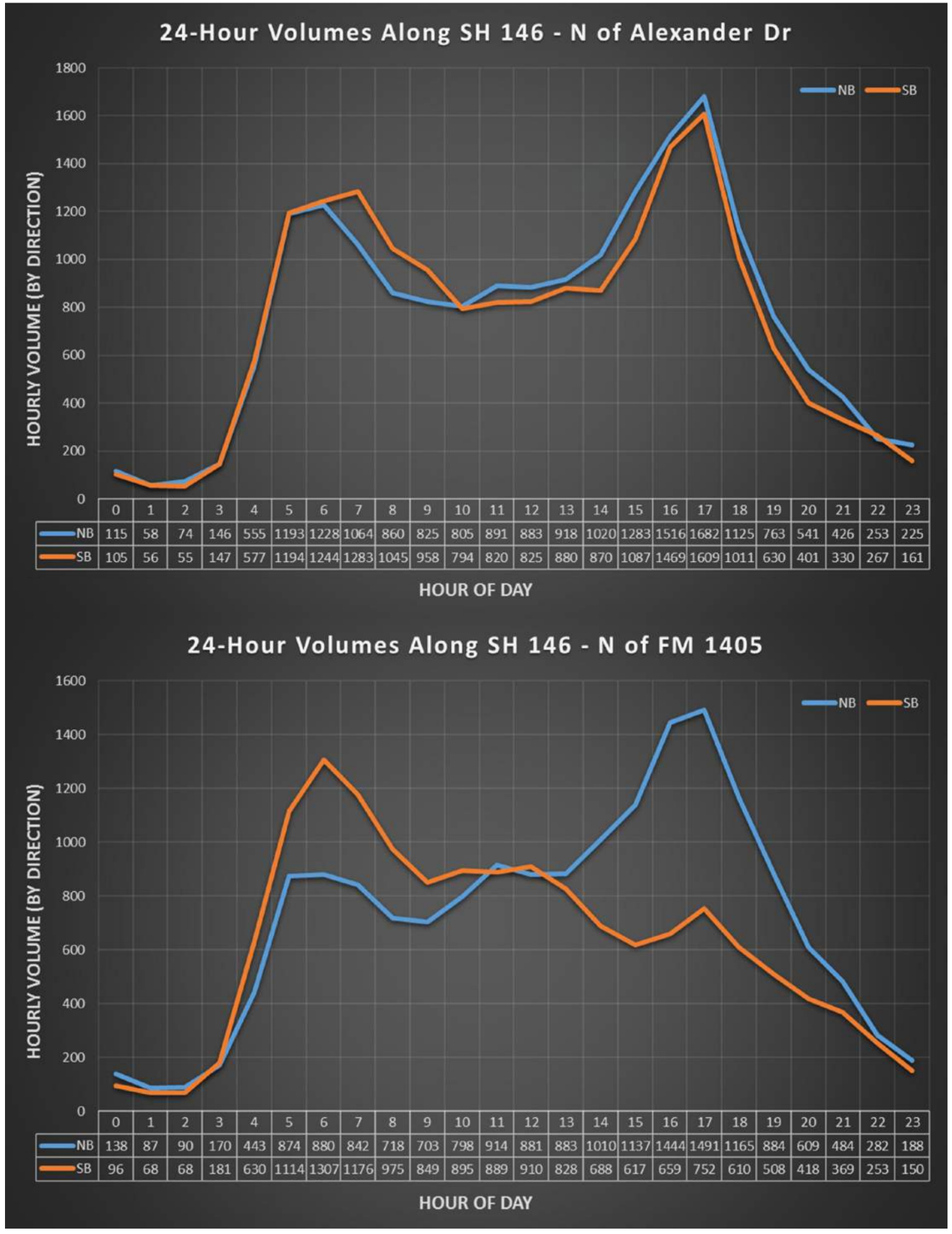
2017 Turning Movement Counts: PM Peak Hour

Node	Name	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
1	SH 146 @ FM 3360	115	510	0	37	0	105	0	1044	108	0	0	0
2	SH 146 @ FM 1942	0	528	23	0	0	0	97	1017	0	55	0	465
3	SH 146 @ Loop 207 N	128	890	0	4	0	83	0	1062	0	0	0	0
4	SH 146 @ Equistar Chemicals Drwy	0	376	0	0	0	0	1	742	0	1	0	0
5	SH 146 @ Williams St	2	915	0	0	0	0	0	1072	3	0	0	0
6	SH 146 @ Chevron Truck Drwy	0	977	0	0	0	0	0	1005	0	1	0	1
7	SH 146 @ LP 207/Targa Drwy	1	600	3	199	1	1	7	968	353	8	6	27
8	SH 146 @ Targa Employee Parking/Sun Oil Rd	0	1230	0	0	0	0	0	1396	0	0	0	0
9	SH 146 @ Truck Stop Drwy	2	1313	2	0	0	5	1	1573	4	0	0	2
10	SH 146 @ I-10 WBFR	0	864	423	397	58	187	535	1280	0	0	0	0
11	SH 146 @ I-10 EBFR	180	1102	0	0	0	0	0	1160	282	686	226	658
12	SH 146 @ Walmart Drwy	78	1704	0	11	0	143	0	1358	37	0	0	0
13	SH 146 @ Main Walmart Drwy	137	1549	0	202	0	111	0	1233	227	0	0	0
14	SH 146 @ Old Needlepoint Rd	9	1759	1	7	0	5	2	1447	0	2	0	1
15	SH 146 @ Kilgore Pkwy	59	1519	0	113	0	22	0	1376	310	0	0	0
16	SH 146 @ Pinehurst St	0	1538	84	0	0	0	21	1779	0	25	0	31
17	SH 146 @ Clark Elementary School Drwy/Devinwood Dr	30	1533	25	32	2	12	14	1861	60	17	1	10
18	SH 146 @ FM 1405/N Twisted Oak St	107	1577	3	147	3	352	23	1578	19	3	1	12
19	SH 146 @ FM 565	10	1778	0	538	0	39	0	1657	429	0	0	0
20	SH 146 @ Tompkins Dr	0	1706	64	0	0	0	29	1740	0	17	0	17
21	SH 146 @ Massey Tompkins Rd	9	1962	289	0	0	10	22	1695	2	349	9	20
22	SH 146 @ Ferry Rd	0	1899	0	0	0	0	151	1750	0	0	0	83
23	SH 146 SB @ N. Alexander Dr	98	1818	88	11	34	0	0	0	0	0	48	7
24	SH 146 NB @ N. Alexander Dr	0	0	0	0	27	51	22	1891	17	39	101	0
25	N Alexander Dr (SH 146B) @ SH 146 WBFR	0	495	144	230	13	15	410	858	0	0	0	0
26	N Alexander Dr (SH 146B) @ SH 146 EBFR	115	599	0	0	0	0	0	875	198	381	205	377
101	FM 1942 @ Hadden Rd	46	99	227	31	666	16	32	0	29	6	144	5
102	FM 1942 @ Hatcherville Rd	433	0	540	0	125	55	0	0	0	73	151	0
103	FM 565 @ FM 3360	64	235	16	225	126	35	47	213	393	17	298	180
104	Sjolander Rd @ I-10 WBFR	0	893	950	174	48	80	111	182	0	0	0	0
105	Sjolander Rd @ I-10 EBFR	576	496	0	0	0	0	0	186	171	113	4	0
106	SH 99 SBFR @ I-10 WBFR	0	0	0	239	239	0	0	0	0	0	0	0
107	SH 99 NBFR @ I-10 WBFR	0	0	0	0	318	0	163	0	0	0	0	0
108	SH 99 SBFR @ I-10 EBFR	2	239	0	0	0	0	0	0	0	0	60	119
109	SH 99 NBFR @ I-10 EBFR	0	0	0	0	0	0	0	160	449	1	62	0
110	FM 3180 @ I-10 WBFR	11	337	452	11	0	100	191	926	68	0	0	27
111	FM 3180 @ I-10 EBFR	123	272	21	0	0	625	0	562	49	0	0	326
112	FM 565 @ I-10 WBFR	0	118	77	85	65	60	177	283	0	0	0	0
113	FM 565 @ I-10 EBFR	69	137	0	0	0	0	0	151	157	309	58	52
114	FM 565 @ FM 1405	35	175	121	143	260	60	56	424	60	39	94	6
115	FM 565 @ Ameriport Pkwy	12	1	30	3	215	2	44	0	29	11	500	16
116	FM 565 @ SH 99 SBFR	136	1	59	21	160	0	0	0	0	0	382	5
117	FM 565 @ SH 99 NBFR	0	0	0	0	175	98	6	0	46	55	468	0
118	FM 565 @ FM 2354	0	0	0	9	121	0	102	0	10	0	397	227
119	FM 565 @ FM 3180	106	209	41	94	67	185	4	235	127	168	198	11
120	SH 146B @ SH 99	119	214	0	762	0	75	0	512	579	0	0	0
121	FM 1405 @ SH 99 WBFR	0	82	187	10	282	21	261	159	0	0	0	0
122	FM 1405 @ SH 99 EBFR	23	64	0	0	0	0	0	337	46	77	478	98

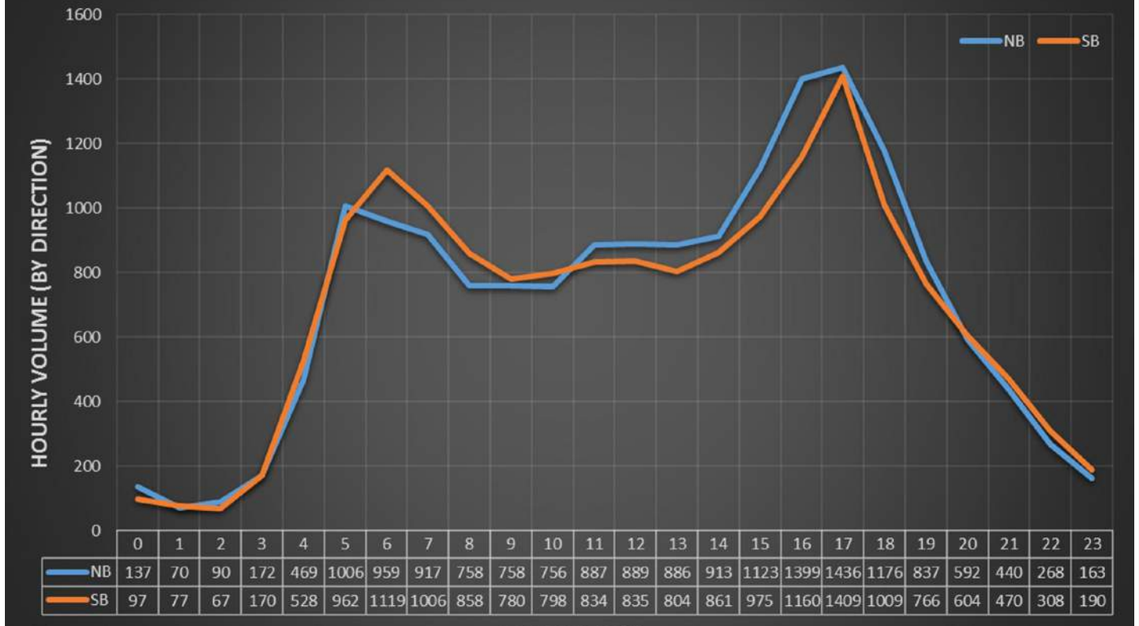
2017 Turning Movement Counts: Weekend Peak Hour

Node	Name	SBL	SBT	SBR	WBL	WBT	WBR	NBL	NBT	NBR	EBL	EBT	EBR
1	SH 146 @ FM 3360	42	333	0	47	0	47	0	358	36	0	0	0
2	SH 146 @ FM 1942	0	336	22	0	0	0	115	355	0	17	0	93
3	SH 146 @ Loop 207 N	30	413	0	1	0	38	0	429	0	0	0	0
4	SH 146 @ Equistar Chemicals Drwy	0	393	1	0	0	0	1	412	0	0	0	1
5	SH 146 @ Williams St	1	440	0	0	0	0	0	390	1	0	0	0
6	SH 146 @ Chevron Truck Drwy	0	451	0	0	0	0	0	447	0	2	0	1
7	SH 146 @ LP 207/Targa Drwy	3	454	0	227	1	4	5	451	206	2	2	8
8	SH 146 @ Targa Employee Parking/Sun Oil Rd	1	689	0	7	0	1	0	651	8	0	0	0
9	SH 146 @ Truck Stop Drwy	5	796	3	1	0	6	9	755	11	2	0	18
10	SH 146 @ I-10 WBFR	0	507	290	393	39	114	370	680	0	0	0	0
11	SH 146 @ I-10 EBFR	129	751	0	0	0	0	0	775	393	269	148	356
12	SH 146 @ Walmart Drwy	140	968	39	13	0	203	8	950	22	8	1	3
13	SH 146 @ Main Walmart Drwy	139	884	0	219	0	149	0	833	243	0	0	0
14	SH 146 @ Old Needlepoint Rd	8	1074	0	2	0	3	1	1079	5	5	0	1
15	SH 146 @ Kilgore Pkwy	10	984	0	55	0	19	0	968	0	0	0	0
16	SH 146 @ Pinehurst St	0	1002	42	0	0	0	36	1002	0	31	0	32
17	SH 146 @ Clark Elementary School Drwy/Devinwood Dr	19	1009	3	23	0	16	1	980	25	5	0	1
18	SH 146 @ FM 1405/N Twisted Oak St	70	974	3	13	0	134	12	881	13	4	2	10
19	SH 146 @ FM 565	6	1025	0	147	0	10	0	923	162	0	0	0
20	SH 146 @ Tompkins Dr	0	1094	63	0	0	0	27	1124	0	46	0	28
21	SH 146 @ Massey Tompkins Rd	6	910	169	3	0	2	14	875	7	190	2	26
22	SH 146 @ Ferry Rd	0	970	2	0	0	0	27	891	0	0	0	35
23	SH 146 SB @ N. Alexander Dr	36	948	33	0	7	0	0	0	0	0	46	3
24	SH 146 NB @ N. Alexander Dr	0	0	0	0	4	50	3	851	4	41	42	0
25	N Alexander Dr (SH 146B) @ SH 146 WBFR	0	282	87	162	13	5	349	402	0	0	0	0
26	N Alexander Dr (SH 146B) @ SH 146 EBFR	32	394	0	0	0	0	0	636	143	110	91	226
101	FM 1942 @ Hadden Rd	1	2	2	11	134	2	7	1	10	0	103	2
102	FM 1942 @ Hatcherville Rd	57	0	53	0	89	66	0	0	0	36	68	0
103	FM 565 @ FM 3360	25	86	24	194	171	46	51	99	215	24	179	68
104	Sjolander Rd @ I-10 WBFR	0	37	58	92	4	21	94	66	0	0	0	0
105	Sjolander Rd @ I-10 EBFR	13	113	0	0	0	0	0	105	106	43	11	1
106	SH 99 SBFR @ I-10 WBFR	0	0	0	75	114	0	0	0	0	0	0	0
107	SH 99 NBFR @ I-10 WBFR	0	0	0	0	139	0	51	0	1	0	0	0
108	SH 99 SBFR @ I-10 EBFR	1	80	0	0	0	0	0	0	0	0	49	73
109	SH 99 NBFR @ I-10 EBFR	0	0	0	0	0	0	0	45	107	4	46	0
110	FM 3180 @ I-10 WBFR	10	278	437	11	2	76	203	468	97	1	0	20
111	FM 3180 @ I-10 EBFR	64	219	20	226	0	284	1	452	21	10	13	220
112	FM 565 @ I-10 WBFR	0	82	70	44	66	42	125	140	0	0	0	0
113	FM 565 @ I-10 EBFR	46	85	0	0	1	0	0	87	87	184	36	22
114	FM 565 @ FM 1405	9	181	27	25	53	10	2	131	21	24	53	1
115	FM 565 @ Ameriport Pkwy	2	0	10	4	227	5	5	0	0	3	240	4
116	FM 565 @ SH 99 SBFR	46	0	39	12	151	0	0	0	0	0	147	1
117	FM 565 @ SH 99 NBFR	0	0	0	0	155	33	5	0	13	8	184	0
118	FM 565 @ FM 2354	0	0	0	4	127	0	97	0	4	0	141	128
119	FM 565 @ FM 3180	117	165	49	60	73	0	10	173	67	68	83	4
120	SH 146B @ SH 99	84	184	0	166	0	68	0	156	171	0	0	0
121	FM 1405 @ SH 99 WBFR	0	44	23	9	147	5	62	49	0	0	0	0
122	FM 1405 @ SH 99 EBFR	7	48	0	0	0	0	1	95	9	18	138	31


LIBERTY
CHAMBERS
Old
River-Winfree
1409
21,851
FM 565
565
HATCHERVILLE
1942
Cedar Bayou
FM 1942
9,916
Mont
Belvieu
EAGLE
3180
146
10,356
565
36,923
LANGSTON
10
4,462
WALLISVILLE
S JOLANDER
Cove
42,802
KILGORE
ARCHER
6,284
565
2354
FM 3180
MAIN
CEDAR BAYOU LYNCHBURG
40,695
10,105
GRAND PKWY
MASSEY TOMPKINS
12,578
1405
45,942
FM 2354
Beach City
FM 1405
Baytown
Cedar Bayou
GRAND PKWY
Under Capacity
Near Capacity
Over Capacity
Average Daily Traffic Count
Miles
0
1
N
W
E
S

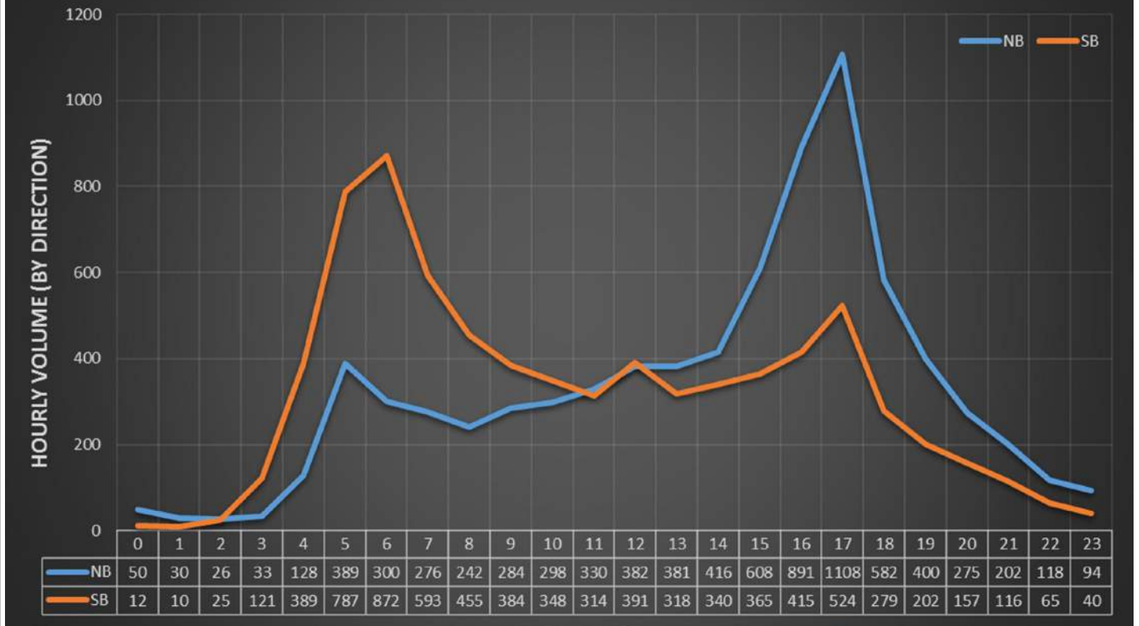

24-Hour Volumes Along SH 146 - N of Alexander Dr
HOURLY VOLUME (BY DIRECTION)
HOUR OF DAY
NB
SB
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
NB 115 58 74 146 555 1193 1228 1064 860 825 805 891 883 918 1020 1283 1516 1682 1125 763 541 426 253 225
SB 105 56 55 147 577 1194 1244 1283 1045 958 794 820 825 880 870 1087 1469 1609 1011 630 401 330 267 161
24-Hour Volumes Along SH 146 - N of FM 1405
HOURLY VOLUME (BY DIRECTION)
HOUR OF DAY
NB
SB
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23
NB 138 87 90 170 443 874 880 842 718 703 798 914 881 883 1010 1137 1444 1491 1165 884 609 484 282 188
SB 96 68 68 181 630 1114 1307 1176 975 849 895 889 910 828 688 617 659 752 610 508 418 369 253 150

24-Hour Volumes Along SH 146 - S of I-10



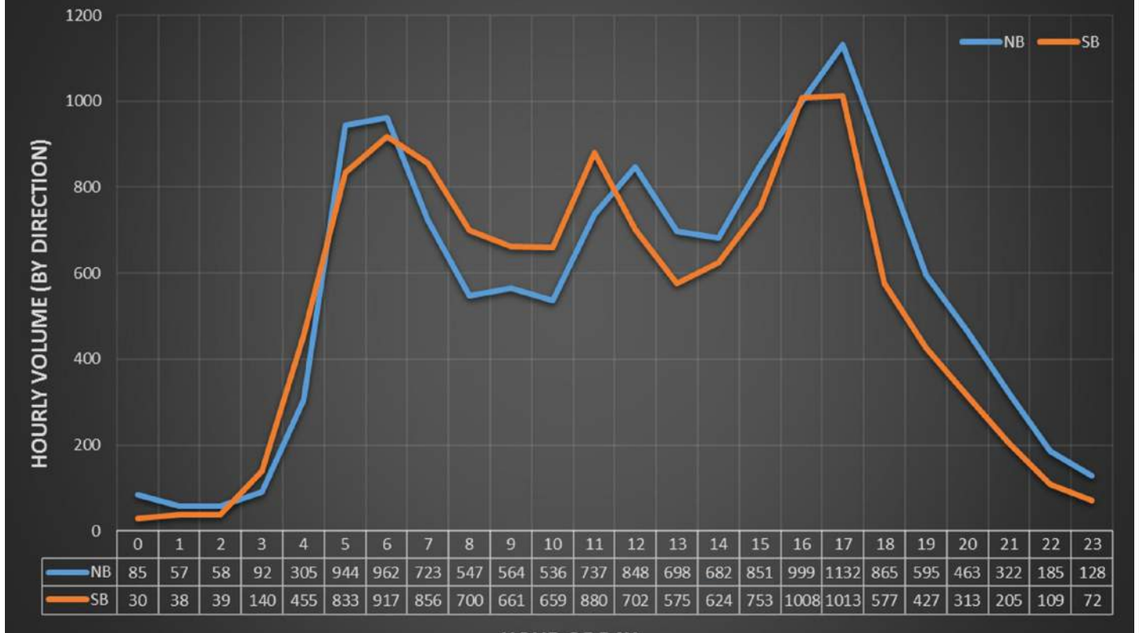
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NB	137	70	90	172	469	1006	959	917	758	758	756	887	889	886	913	1123	1399	1436	1176	837	592	440	268	163
SB	97	77	67	170	528	962	1119	1006	858	780	798	834	835	804	861	975	1160	1409	1009	766	604	470	308	190

24-Hour Volumes Along SH 146 - S of FM 3360



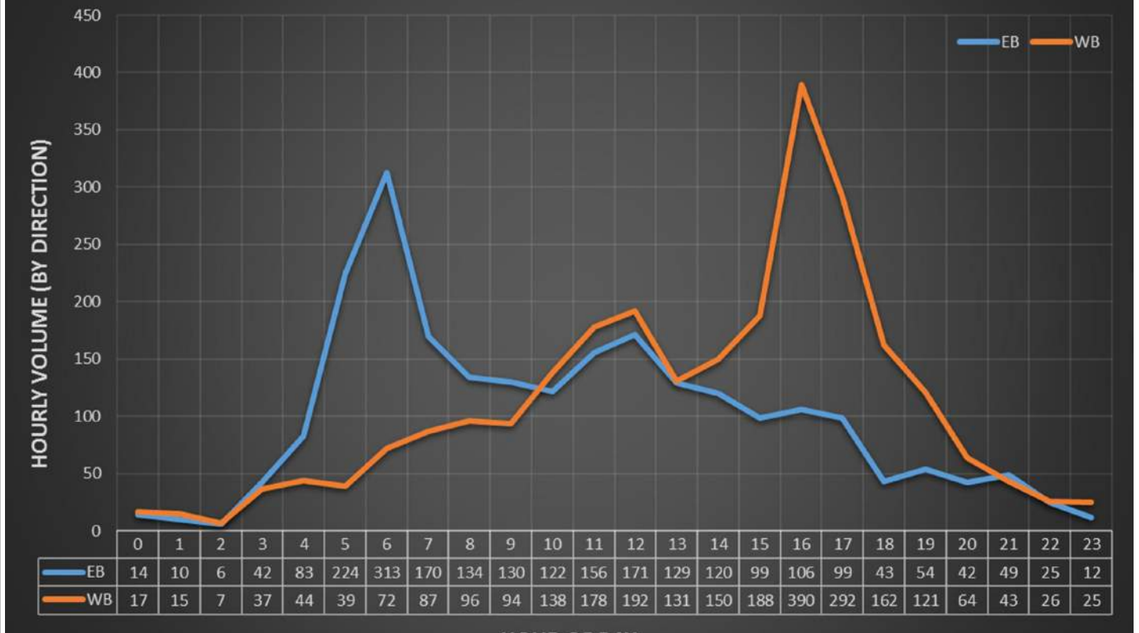
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NB	50	30	26	33	128	389	300	276	242	284	298	330	382	381	416	608	891	1108	582	400	275	202	118	94
SB	12	10	25	121	389	787	872	593	455	384	348	314	391	318	340	365	415	524	279	202	157	116	65	40

24-Hour Volumes Along SH 146 - S of SH 207



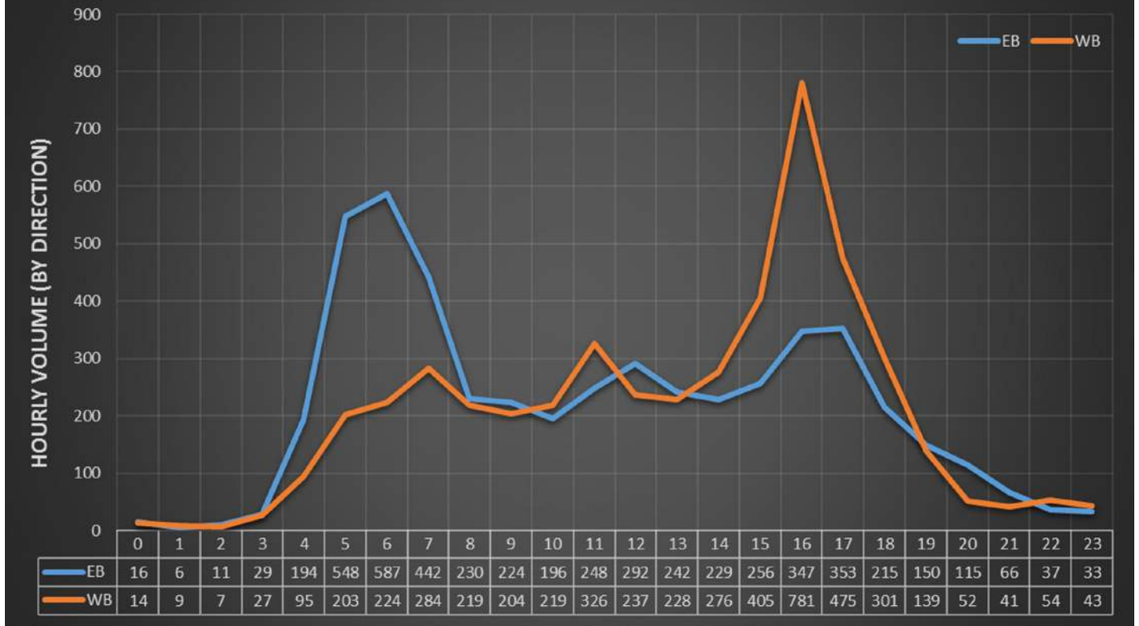
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NB	85	57	58	92	305	944	962	723	547	564	536	737	848	698	682	851	999	1132	865	595	463	322	185	128
SB	30	38	39	140	455	833	917	856	700	661	659	880	702	575	624	753	1008	1013	577	427	313	205	109	72

24-Hour Volumes Along FM 1405 - E of SH 146



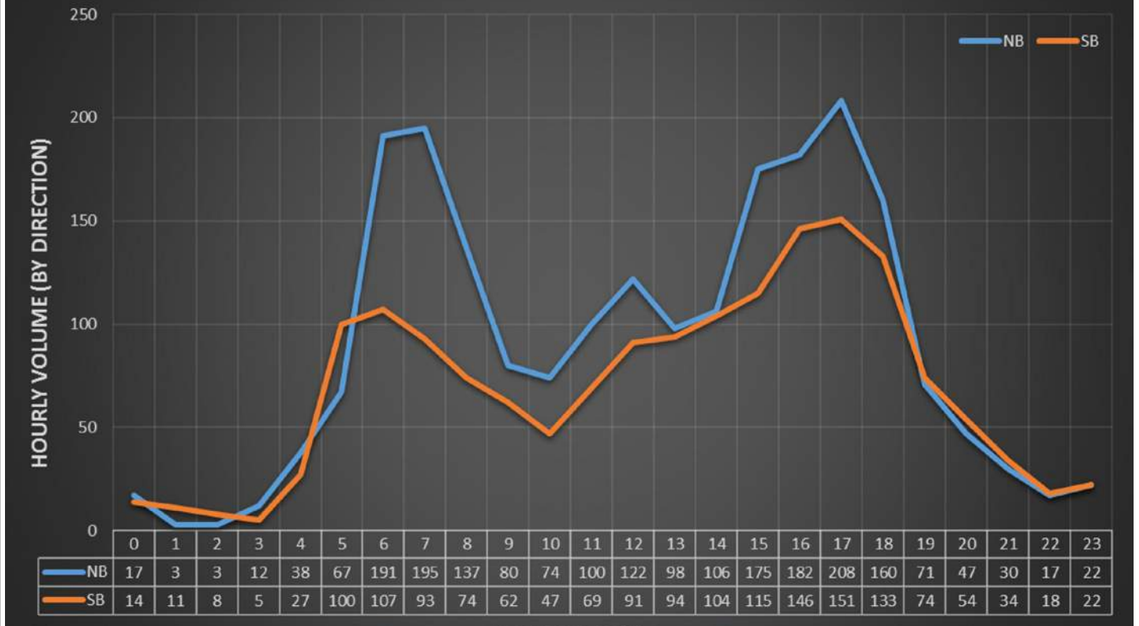
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
EB	14	10	6	42	83	224	313	170	134	130	122	156	171	129	120	99	106	99	43	54	42	49	25	12
WB	17	15	7	37	44	39	72	87	96	94	138	178	192	131	150	188	390	292	162	121	64	43	26	25

24-Hour Volumes Along FM 565 - E of SH 146



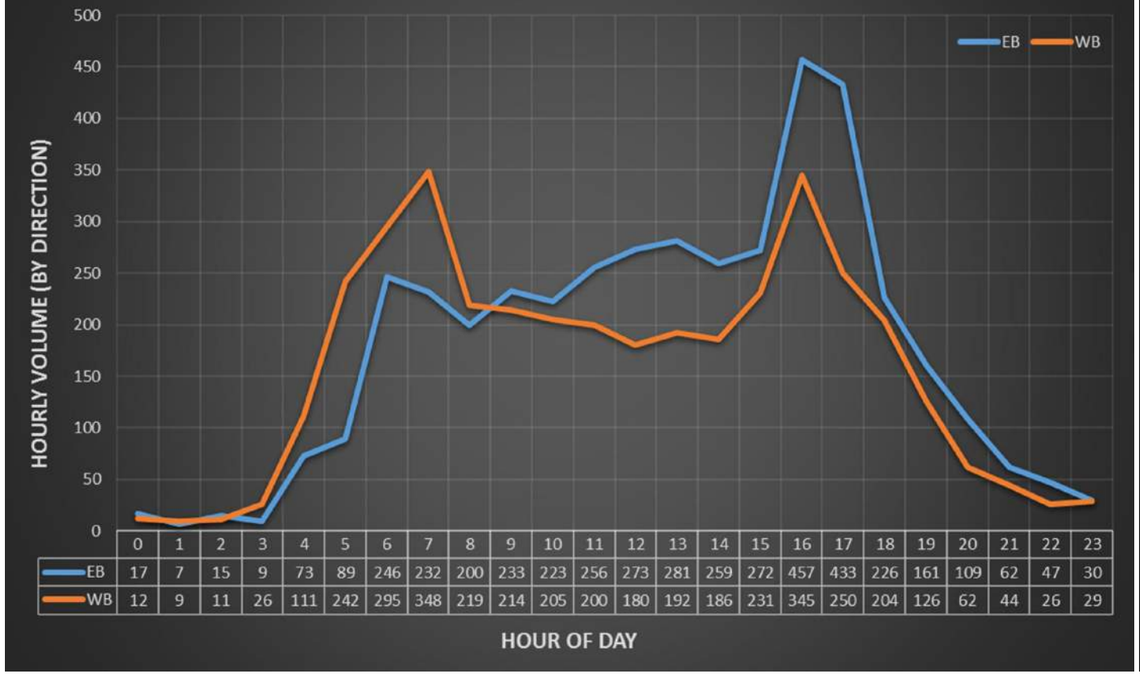
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
EB	16	6	11	29	194	548	587	442	230	224	196	248	292	242	229	256	347	353	215	150	115	66	37	33
WB	14	9	7	27	95	203	224	284	219	204	219	326	237	228	276	405	781	475	301	139	52	41	54	43

24-Hour Volumes Along FM 565 - S of I-10



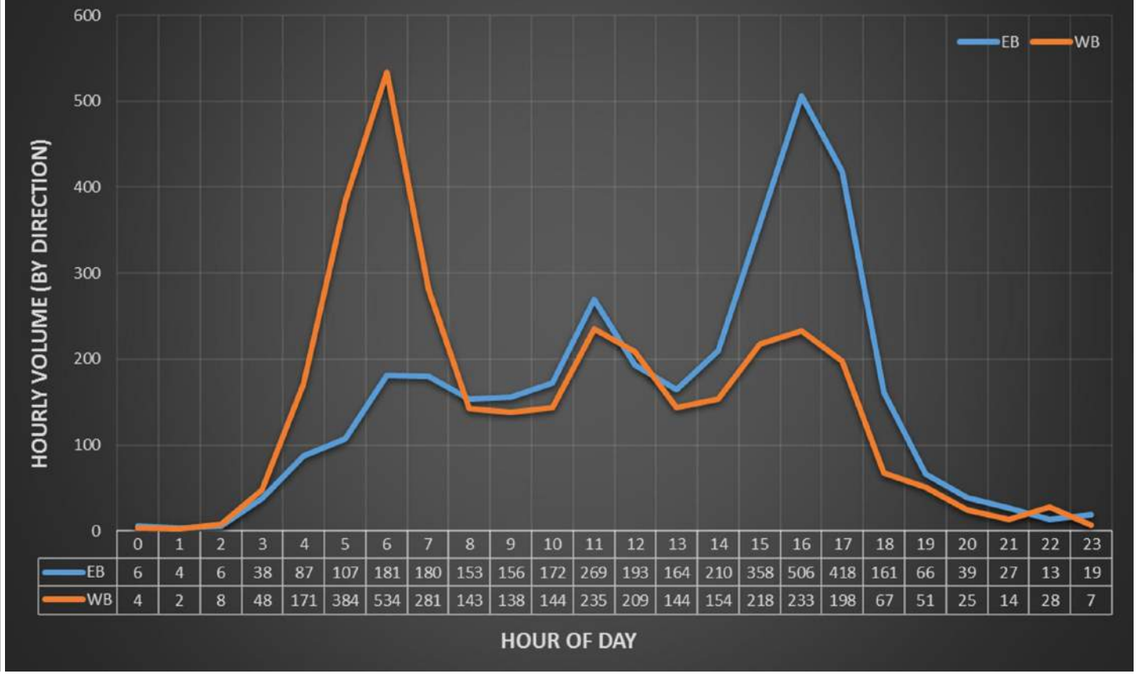
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NB	17	3	3	12	38	67	191	195	137	80	74	100	122	98	106	175	182	208	160	71	47	30	17	22
SB	14	11	8	5	27	100	107	93	74	62	47	69	91	94	104	115	146	151	133	74	54	34	18	22

24-Hour Volumes Along FM 565 - E of FM 1405

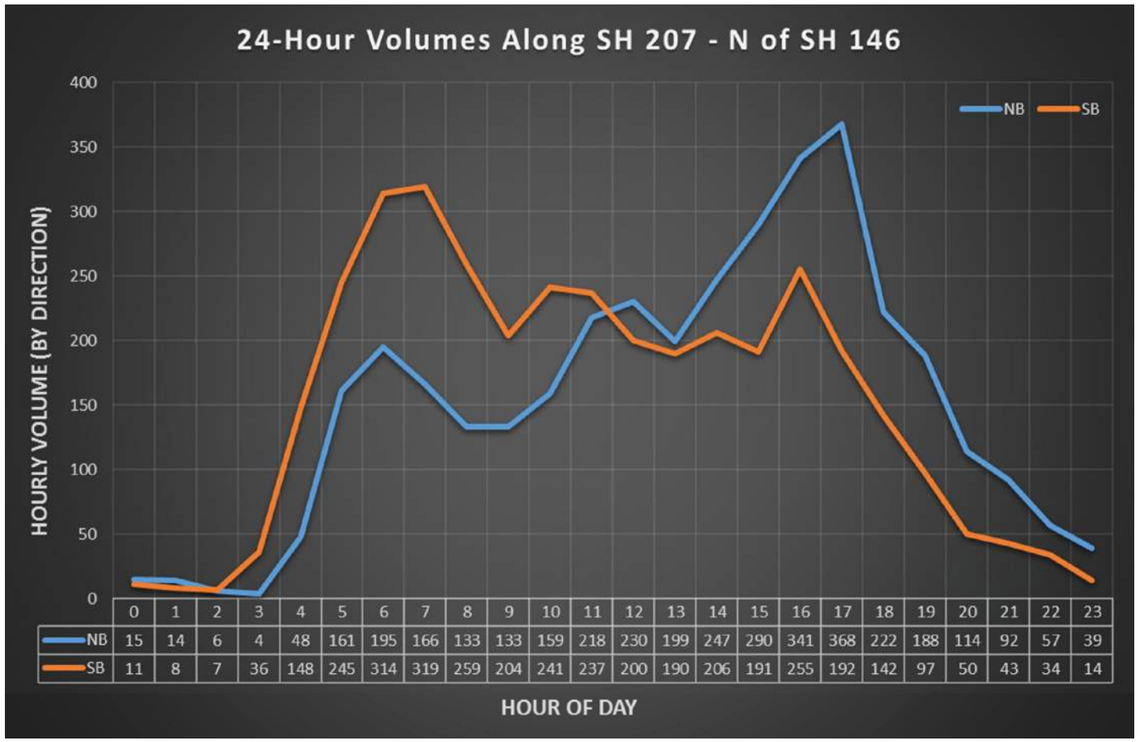


	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
EB	17	7	15	9	73	89	246	232	200	233	223	256	273	281	259	272	457	433	226	161	109	62	47	30
WB	12	9	11	26	111	242	295	348	219	214	205	200	180	192	186	231	345	250	204	126	62	44	26	29

24-Hour Volumes Along FM 1942 - W of SH 146



	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
EB	6	4	6	38	87	107	181	180	153	156	172	269	193	164	210	358	506	418	161	66	39	27	13	19
WB	4	2	8	48	171	384	534	281	143	138	144	235	209	144	154	218	233	198	67	51	25	14	28	7



	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
NB	15	14	6	4	48	161	195	166	133	133	159	218	230	199	247	290	341	368	222	188	114	92	57	39
SB	11	8	7	36	148	245	314	319	259	204	241	237	200	190	206	191	255	192	142	97	50	43	34	14

Level-of-Service Summary

2017 Background Capacity Analysis (Signalized)		Intersection LOS				AM Delay (By Approach)				PM (By Approach)			
Node	Intersection	AM Delay	AM LOS	PM Delay	PM LOS	NB	SB	EB	WB	NB	SB	EB	WB
2	SH 146 @ FM 1942	21.7	C	29.3	C	24.2	19.1	24.7	-	19.1	21.0	59.8	-
3	SH 146 @ Loop 207 N	7.7	A	25.2	C	7.4	7.2	-	16.6	27.7	24.0	-	8.0
7	SH 146 @ LP 207/Targa Drwy	30.3	C	21.8	C	22.6	27.7	0.1	54.9	19.8	10.7	17.0	68.9
10	SH 146 @ I-10 WBFR	27.5	C	47.5	D	17.8	37.2	-	30.0	8.4	89.1	-	74.5
11	SH 146 @ I-10 EBFR	16.0	B	69.5	E	17.0	14.3	16.6	-	59.4	28.2	112.6	-
13	SH 146 @ Main Walmart Drwy	17.5	B	15.6	B	15.6	19.5	-	18.3	15.1	13.3	-	30.4
15	SH 146 @ Kilgore Pkwy	9.2	A	9.7	A	8.4	8.0	-	35.9	6.8	9.5	-	49.6
17	SH 146 @ Clark Elementary School Drwy/Devinwood Dr	10.4	B	16.0	B	2.5	9.0	54.5	58.1	19.7	9.5	52.7	64.3
18	SH 146 @ FM 1405/N Twisted Oak St	6.0	A	40.8	D	8.9	2.4	38.3	29.9	25.7	23.4	35.4	148.2
19	SH 146 @ FM 565	13.2	B	26.4	C	9.7	8.4	-	58.1	13.7	27.1	-	69.7
21	SH 146 @ Massey Tompkins Rd	8.2	A	15.9	B	4.9	4.4	55.5	-	6.3	9.9	96.9	-
23	SH 146 SB @ N. Alexander Dr	20.2	C	17.2	B	-	20.1	34.7	7.2	-	16.5	41.2	20.6
24	SH 146 NB @ N. Alexander Dr	19.1	B	16.8	B	19.6	-	16.4	11.6	15.8	-	28.2	19.1
25	N Alexander Dr (SH 146B) @ SH 146 WBFR	20.6	C	18.0	B	8.6	34.5	-	36.8	4.9	41.1	-	25.3
26	N Alexander Dr (SH 146B) @ SH 146 EBFR	16.9	B	25.5	C	24.9	4.3	17.7	-	41.8	10.9	18.3	-
102	FM 1942 @ Hatcherville Rd	43.3	D	22.3	C	-	28.3	45.5	46.6	-	9.9	44.8	61.6
103	FM 565 @ FM 3360	34.8	C	55.9	E	30.5	47.7	33.7	32.4	52.4	60.8	57.2	56.2
104	Sjolander Rd @ I-10 WBFR	17.3	B	25.3	C	8.5	26.8	-	37.6	6.5	24.4	-	49.4
105	Sjolander Rd @ I-10 EBFR	36.8	D	25.8	C	42.7	27.3	34.9	-	52.5	11.7	73.5	-
114	FM 565 @ FM 1405	87.6	F	186.9	F	92.1	97.2	77.2	61.4	191.0	220.8	68.5	193.6
119	FM 565 @ Eagle Drive (FM 3180)	44.6	D	58.2	E	47.0	44.0	69.8	33.1	60.1	63.2	74.0	34.0
120	SH 146B @ SH 99	21.0	C	27.3	C	6.2	21.3	-	39.2	14.4	29.9	-	43.0

	Signalized Intersecion Delay - AM Peak Hour					
	Background Roadway			Improved Roadway		
Node	2017	2025	2035	2017	2025	2035
1				11.3	13.4	20.3
2	21.7	30.4	101.6	9.6	21.7	98
3	7.7	17.2	170.1			
7	30.3	60.7	281.7	10.7	13.7	40.1
10	27.9	43	84.5	17.5	19.4	24.6
11	17.2	23.1	45.4	9.2	12.1	17.2
13	17.1	13	26.8	17.7	14.6	8.7
14				0.9	1.7	2.6
15	17	13.2	17.4	12.8	10.6	17.1
17	13.2	23.5	124.1	12	19.4	111.9
18	4	5.8	25.9	5.6	8.3	13.8
19	14.5	18.7	35.9	15	20.2	50.3
21	8.9	13	48.2	7.9	9.1	14.2
23	18.5	17.9	23.2	24.6	25.6	26.7
24	17.6	17.2	21.3	20	20.7	21.2
25	18	20.8	40.5	18	20.4	35
26	16	21.3	36.4	15.9	21.7	25.6
102	43.3	78.3	266.5	37.5	64.9	250.9
103	34.8	73	372	29.8	48.5	214.3
104	16.9	24.9	63.4	16.3	28.5	37.5
105	37.7	59.1	117.4	37	53.6	86.9
106				17.3	18.8	21.2
107				41.8	41.2	39.6
108				5	5.2	5.3
109				1.7	1.5	1.7
110				18.2	34.9	59.9
111				30.1	35.7	68.9
114	87.6	171.2	343.9	28.5	33.7	43.9
115				33.6	30	26.9
116				16	14.9	16.5
117				10.6	10.9	12.7
119	44.6	68.8	149.6	20.1	23	29.2
120	21	23.2	29	0.5	0.7	0.7
121				19.7	20.7	26.6
122				16.6	17.7	16.1
123				6.6	6.7	6.6
124				15.3	17.6	28.4

	Signalized Intersecion LOS - AM Peak Hour					
	Background Roadway			Improved Roadway		
Node	2017	2025	2035	2017	2025	2035
1	-	-	-	B	B	C
2	C	C	F	A	C	F
3	A	B	F	-	-	-
7	C	E	F	B	B	D
10	C	D	F	B	B	C
11	B	C	D	A	B	B
13	B	B	C	B	B	A
14	-	-	-	A	A	A
15	B	B	B	B	B	B
17	B	C	F	B	B	F
18	A	A	C	A	A	B
19	B	B	D	B	C	D
21	A	B	D	A	A	B
23	B	B	C	C	C	C
24	B	B	C	C	C	C
25	B	C	D	B	C	D
26	B	C	D	B	C	C
102	D	E	F	D	E	F
103	C	E	F	C	D	F
104	B	C	E	B	C	D
105	D	E	F	D	D	F
106	-	-	-	B	B	C
107	-	-	-	D	D	D
108	-	-	-	A	A	A
109	-	-	-	A	A	A
110	-	-	-	B	C	E
111	-	-	-	C	D	E
114	F	F	F	C	C	D
115	-	-	-	C	C	C
116	-	-	-	B	B	B
117	-	-	-	B	B	B
119	D	E	F	C	C	C
120	C	C	C	A	A	A
121	-	-	-	B	C	C
122	-	-	-	B	B	B
123	-	-	-	A	A	A
124	-	-	-	B	B	C

	Signalized Intersecion V/C Ratio - AM Peak Hour					
	Background Roadway			Improved Roadway		
Node	2017	2025	2035	2017	2025	2035
1				0.64	0.72	0.82
2	0.8	0.93	1.61	0.59	0.78	1.2
3	0.8	0.93	1.61			
7	0.9	1.04	1.65	0.46	0.61	1.04
10	0.89	0.98	1.3	0.59	0.68	0.86
11	0.89	0.98	1.3	0.59	0.68	0.86
13	0.76	0.81	1.03	0.74	0.73	0.76
14				0.31	0.41	0.56
15	0.81	0.87	0.96	0.81	0.87	0.93
17	0.72	0.96	1.39	0.98	1.36	1.84
18	0.57	0.73	1.28	0.52	0.67	0.99
19	0.67	0.76	1.02	0.74	0.86	1.14
21	0.65	0.78	1.1	0.64	0.69	0.82
23	0.74	0.77	0.91	0.5	0.57	0.64
24	0.74	0.77	0.91	0.5	0.57	0.64
25	0.69	0.79	0.97	0.69	0.76	0.99
26	0.69	0.79	0.97	0.69	0.76	0.99
102	0.91	1.1	1.71	0.88	1.05	1.78
103	0.83	1.18	2.33	0.82	1.05	2.18
104	0.89	1.09	1.33	0.82	1.08	1.46
105	0.89	1.09	1.33	0.82	1.08	1.46
106				0.69	0.71	0.73
107				0.62	0.65	0.67
108				0.17	0.2	0.23
109				0.19	0.21	0.24
110				0.83	0.96	1.19
111				0.83	0.96	1.19
114	1.07	1.37	1.89	0.66	0.74	0.87
115				0.73	0.77	0.8
116				0.28	0.3	0.41
117				0.28	0.3	0.41
119	0.84	1.06	1.44	0.61	0.68	0.81
120	0.81	0.85	0.93	0.2	0.25	0.33
121				0.36	0.46	0.72
122				0.36	0.46	0.72
123				0.2	0.25	0.33
124				0.63	0.7	0.96

	Signalized Intersecion Delay - PM Peak Hour					
	Background Roadway			Improved Roadway		
Node	2017	2025	2035	2017	2025	2035
1				10	26.4	178.2
2	29.3	153.2	437	16.9	35.6	163.3
3	25.2	82	300.1			
7	21.8	83.3	279.4	11.3	16.9	108.4
10	60.6	106.4	193.7	23.6	25.3	52.3
11	70.1	122.3	216.7	18.8	34.6	83.9
13	15.1	20.3	140	16.2	18.9	19.8
14				2.3	1.8	4.7
15	9.4	28.8	138.3	9	17.9	125.3
17	10.9	54.9	241.6	10.3	43.4	222.4
18	47.6	142.4	367.8	11.2	20	198.3
19	19.7	57	205.8	29.9	99.5	271.5
21	21.8	65.1	211.5	13.8	16.4	68.1
23	16.1	18.7	90.4	22.7	23.5	23.7
24	15.7	17.9	72.5	18.8	19.3	19.4
25	17.3	24.1	61.2	16.9	30.7	62.3
26	24.8	37.4	115.7	24	45.8	122.9
102	22.3	34.6	181.8	20.1	32.2	167.9
103	55.9	248.8	861.3	27.7	45	241.2
104	25.3	43.7	93.5	22.3	24.4	82
105	25.8	42.1	93.5	23.9	41.7	88.9
106				14.4	13.9	14.2
107				36.3	35.7	34.8
108				9.2	9.4	9.5
109				2.2	2.5	2
110				11.5	13.5	22.7
111				26.7	29.9	33
114	186.9	324.7	558.5	30.3	37.3	59.1
115				36.4	33.5	29.3
116				15.8	17.4	20.5
117				7.6	8.4	9.4
119	58.2	106.6	220.7	23.4	27.2	34.9
120	27.3	32.9	73.2	0.5	0.6	0.9
121				20.1	19.7	30.8
122				24.2	24.5	26.3
123				10.4	10.8	10.8
124				16.4	23.1	99.4

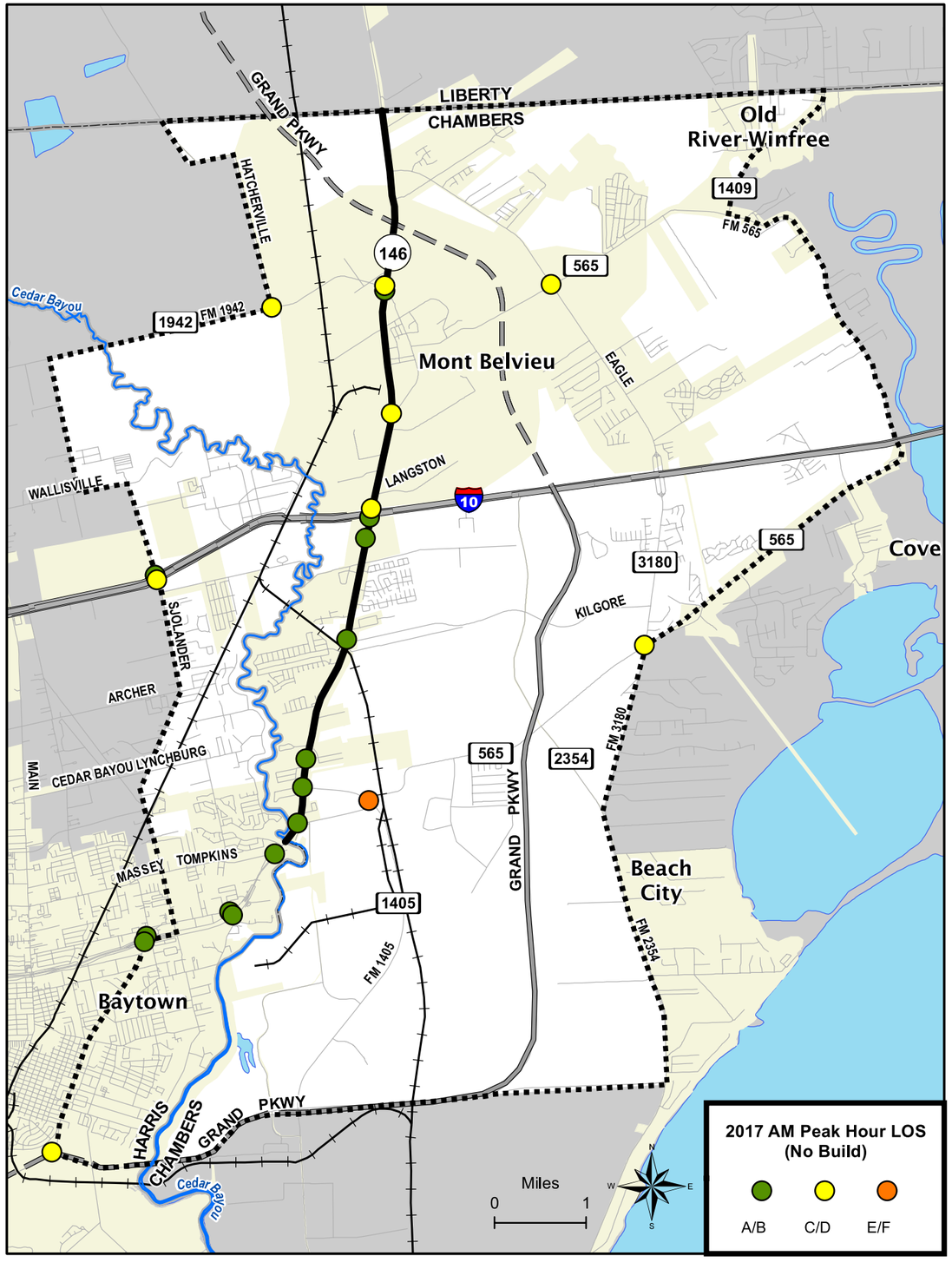
	Signalized Intersecion LOS - PM Peak Hour					
	Background Roadway			Improved Roadway		
Node	2017	2025	2035	2017	2025	2035
1	-	-	-	A	C	F
2	C	F	F	B	D	F
3	C	F	F	-	-	-
7	C	F	F	B	B	F
10	E	F	F	C	C	D
11	E	F	F	B	C	F
13	B	C	F	B	B	B
14	-	-	-	A	A	A
15	A	C	F	A	B	F
17	B	D	F	B	D	F
18	D	F	F	B	C	F
19	B	E	F	C	F	F
21	C	E	F	B	B	E
23	B	B	F	C	C	C
24	B	B	E	B	B	B
25	B	C	E	B	C	E
26	C	D	F	C	D	F
102	C	C	F	C	C	F
103	E	F	F	C	D	F
104	C	D	F	C	C	F
105	C	D	F	C	D	F
106	-	-	-	B	B	B
107	-	-	-	D	D	C
108	-	-	-	A	A	A
109	-	-	-	A	A	A
110	-	-	-	B	B	C
111	-	-	-	C	C	C
114	F	F	F	C	D	E
115	-	-	-	D	C	C
116	-	-	-	B	B	C
117	-	-	-	A	A	A
119	E	F	F	C	C	C
120	C	C	E	A	A	A
121	-	-	-	C	B	C
122	-	-	-	C	C	C
123	-	-	-	B	B	B
124	-	-	-	B	C	F

	Signalized Intersecion V/C Ratio - PM Peak Hour					
	Background Roadway			Improved Roadway		
Node	2017	2025	2035	2017	2025	2035
1				0.62	1.08	1.57
2	0.98	1.48	2.42	0.8	1.01	1.61
3	0.98	1.48	2.42			
7	0.86	1.18	1.83	0.52	0.8	1.31
10	1.29	1.51	1.84	0.86	1.03	1.24
11	1.29	1.51	1.84	0.86	1.03	1.24
13	0.84	0.99	1.33	0.77	0.8	0.93
14				0.44	0.56	0.78
15	0.85	1.07	1.45	0.85	1.01	1.39
17	0.88	1.15	1.66	0.85	1.11	1.62
18	1.22	1.54	2.07	0.79	1.07	1.49
19	0.94	1.19	1.61	1.07	1.33	1.65
21	0.99	1.26	1.69	0.76	0.95	1.34
23	0.78	0.87	1.15	0.61	0.67	0.72
24	0.78	0.87	1.15	0.61	0.67	0.72
25	0.72	0.96	1.37	0.71	1.06	1.39
26	0.72	0.96	1.37	0.71	1.06	1.39
102	0.76	0.89	1.43	0.75	0.9	1.43
103	0.96	1.64	3.53	0.74	0.95	2.02
104	0.88	1.04	1.26	0.84	1	1.29
105	0.88	1.04	1.26	0.84	1	1.29
106				0.6	0.61	0.62
107				0.64	0.67	0.7
108				0.35	0.38	0.43
109				0.34	0.4	0.49
110				0.82	0.86	0.94
111				0.82	0.86	0.94
114	1.41	1.82	2.47	0.69	0.79	1
115				0.79	0.81	0.85
116				0.47	0.56	0.67
117				0.47	0.56	0.67
119	0.95	1.25	1.68	0.66	0.75	0.86
120	0.86	0.94	1.22	0.28	0.36	0.46
121				0.63	0.62	0.85
122				0.63	0.62	0.85
123				0.28	0.36	0.46
124				0.68	0.86	1.39

Signalized Intersecion LOS Comparison - AM Peak Hour							
Node	Intersection	2017		2025		2035	
		BG	IMP	BG	IMP	BG	IMP
2	SH 146 @ FM 1942	C	A	C	C	F	F
7	SH 146 @ LP 207/Targa Drwy	C	B	E	B	F	D
10	SH 146 @ I-10 WBFR	C	B	D	B	F	C
11	SH 146 @ I-10 EBFR	B	A	C	B	D	B
13	SH 146 @ Main Walmart Drwy	B	B	B	B	C	A
15	SH 146 @ Kilgore Pkwy	B	B	B	B	B	B
17	SH 146 @ Clark Elementary School Drwy/Devinwood Dr	B	B	C	B	F	F
18	SH 146 @ FM 1405/N Twisted Oak St	A	A	A	A	C	B
19	SH 146 @ FM 565	B	B	B	C	D	D
21	SH 146 @ Massey Tompkins Rd	A	A	B	A	D	B
23	SH 146 SB @ N. Alexander Dr	B	C	B	C	C	C
24	SH 146 NB @ N. Alexander Dr	B	C	B	C	C	C
25	N Alexander Dr (SH 146B) @ SH 146 WBFR	B	B	C	C	D	D
26	N Alexander Dr (SH 146B) @ SH 146 EBFR	B	B	C	C	D	C
102	FM 1942 @ Hatcherville Rd	D	D	E	E	F	F
103	FM 565 @ FM 3360	C	C	E	D	F	F
104	Sjolander Rd @ I-10 WBFR	B	B	C	C	E	D
105	Sjolander Rd @ I-10 EBFR	D	D	E	D	F	F
114	FM 565 @ FM 1405	F	C	F	C	F	D
119	FM 565 @ Eagle Drive (FM 3180)	D	C	E	C	F	C
120	SH 146B @ SH 99	C	A	C	A	C	A

LEGEND	
BG	BACKGROUND (NO IMPROVEMENTS)
IMP	IMPROVED (WITH IMPROVEMENTS)
B	NO CHANGE IN LOS FROM BG TO IMP
F	FAILING LOS

Signalized Intersecion LOS Comparison - PM Peak Hour							
Node	Intersection	2017		2025		2035	
		BG	IMP	BG	IMP	BG	IMP
2	SH 146 @ FM 1942	C	B	F	D	F	F
7	SH 146 @ LP 207/Targa Drwy	C	B	F	B	F	F
10	SH 146 @ I-10 WBFR	E	C	F	C	F	D
11	SH 146 @ I-10 EBFR	E	B	F	C	F	F
13	SH 146 @ Main Walmart Drwy	B	B	C	B	F	B
15	SH 146 @ Kilgore Pkwy	A	A	C	B	F	F
17	SH 146 @ Clark Elementary School Drwy/Devinwood Dr	B	B	D	D	F	F
18	SH 146 @ FM 1405/N Twisted Oak St	D	B	F	C	F	F
19	SH 146 @ FM 565	B	C	E	F	F	F
21	SH 146 @ Massey Tompkins Rd	C	B	E	B	F	E
23	SH 146 SB @ N. Alexander Dr	B	C	B	C	F	C
24	SH 146 NB @ N. Alexander Dr	B	B	B	B	E	B
25	N Alexander Dr (SH 146B) @ SH 146 WBFR	B	B	C	C	E	E
26	N Alexander Dr (SH 146B) @ SH 146 EBFR	C	C	D	D	F	F
102	FM 1942 @ Hatcherville Rd	C	C	C	C	F	F
103	FM 565 @ FM 3360	E	C	F	D	F	F
104	Sjolander Rd @ I-10 WBFR	C	C	D	C	F	F
105	Sjolander Rd @ I-10 EBFR	C	C	D	D	F	F
114	FM 565 @ FM 1405	F	C	F	D	F	E
119	FM 565 @ Eagle Drive (FM 3180)	E	C	F	C	F	C
120	SH 146B @ SH 99	C	A	C	A	E	A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CHAMBERS
Old
River-Winfree
1409
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146
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Cedar Bayou
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Mont Belvieu
EAGLE
WALLISVILLE
LANGSTON
10
3180
565
Cove
S JOLANDER
KILGORE
ARCHER
MAIN
CEDAR BAYOU LYNCHBURG
565
2354
FM 3180
GRAND PKWY
MASSEY
TOMPKINS
1405
Beach
City
FM 2354
FM 1405
Baytown
HARRIS
CHAMBERS
GRAND PKWY
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Miles
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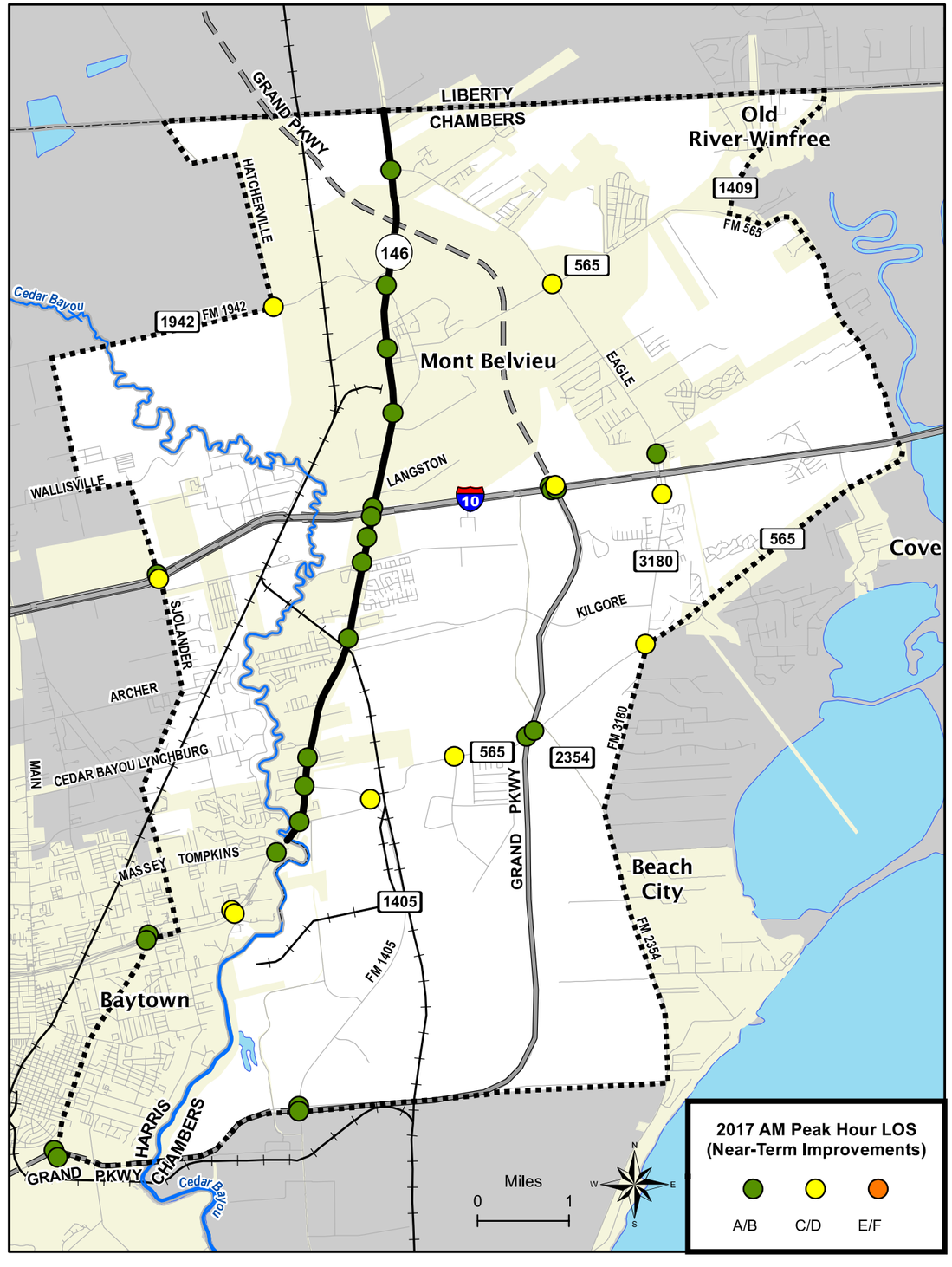
(No Build)
A/B
C/D
E/F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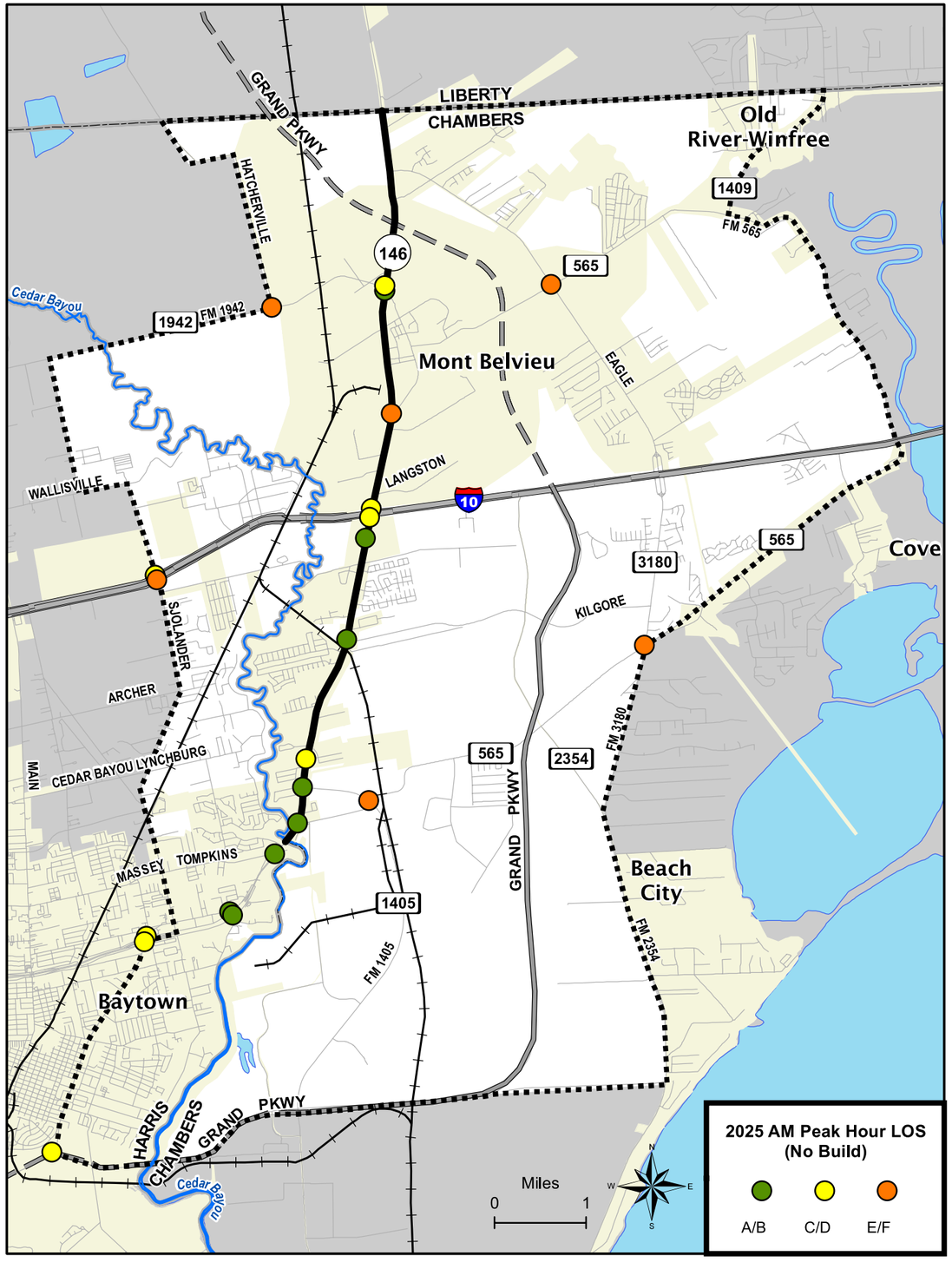
2017 AM Peak Hour LOS
(Near-Term Improvements)
A/B
C/D
E/F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GRAND PKWY
Cedar Bayou
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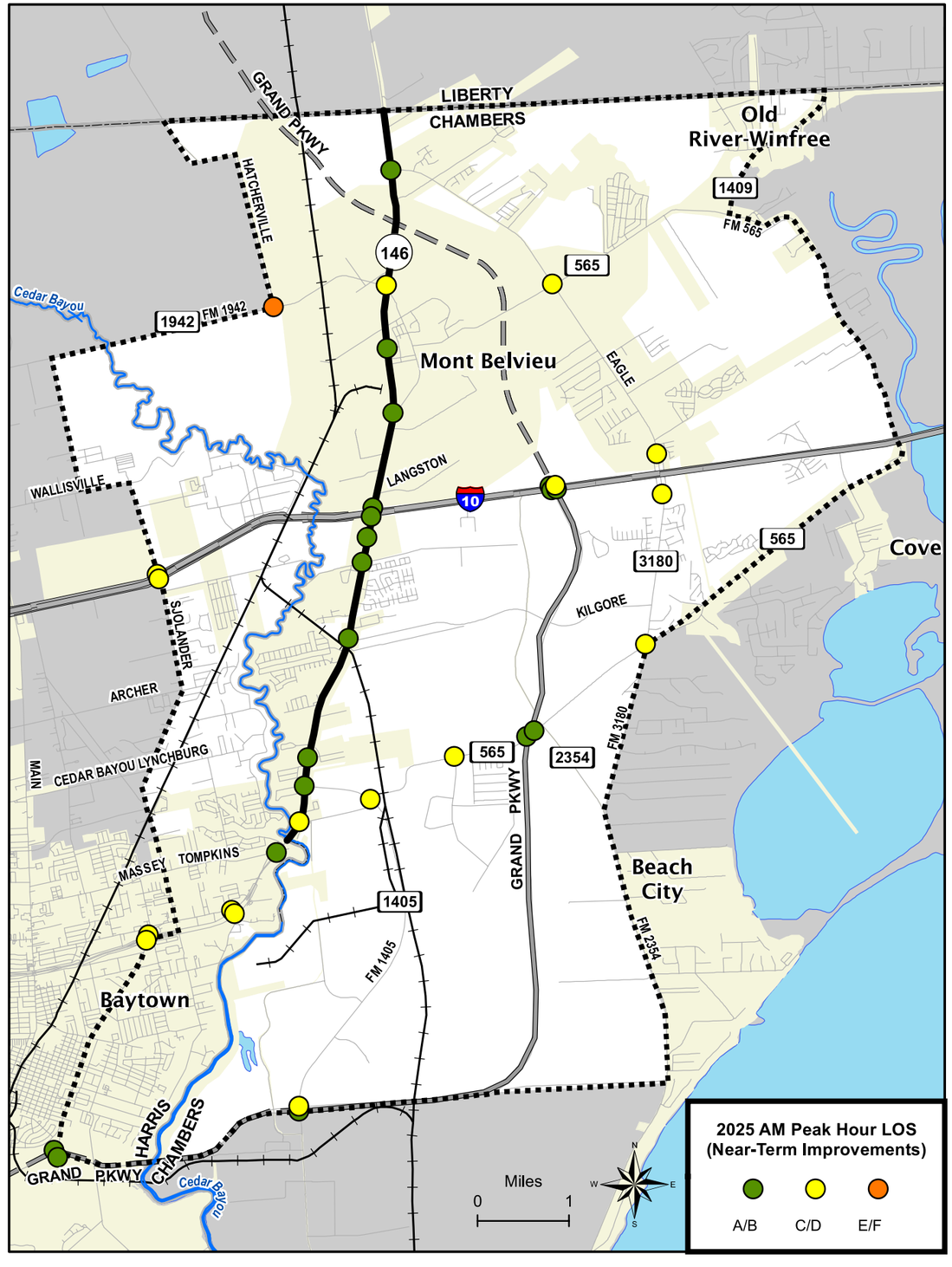
2025 AM Peak Hour LOS
(No Build)
A/B
C/D
E/F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2025 AM Peak Hour LOS
(Near-Term Improvements)
A/B
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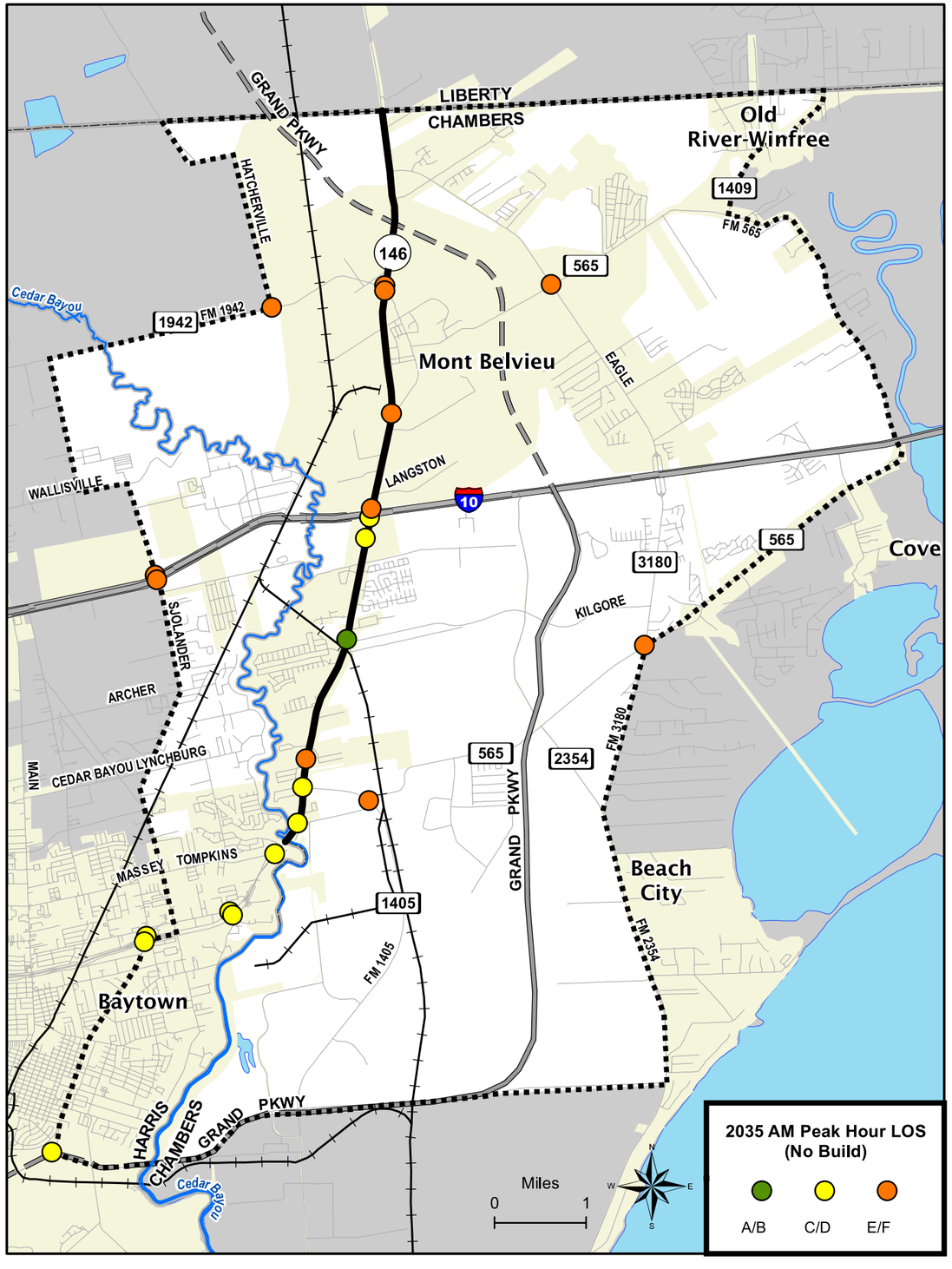
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2035 AM Peak Hour LOS
(No Build)
A/B
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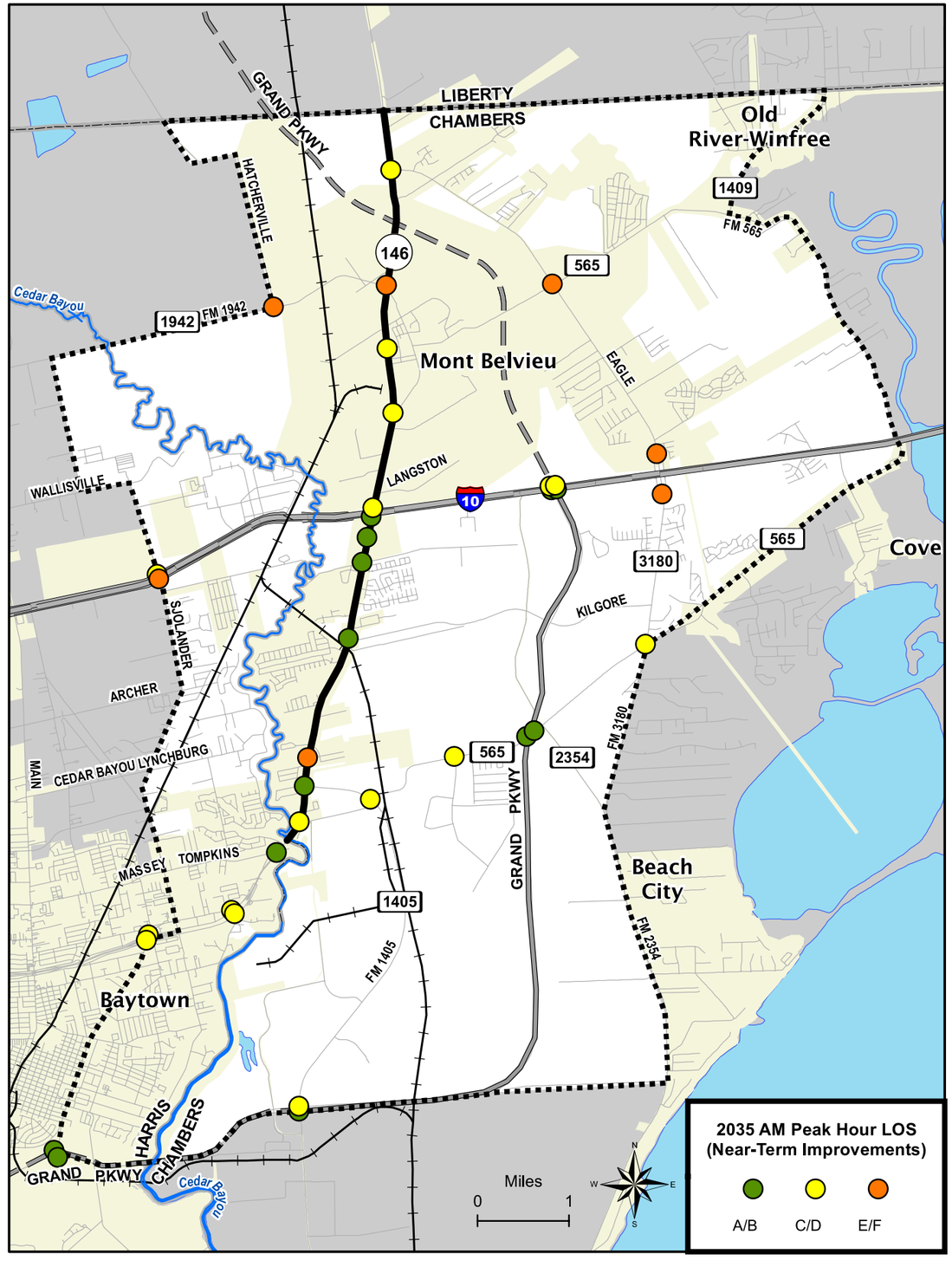
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2035 AM Peak Hour LOS
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A/B
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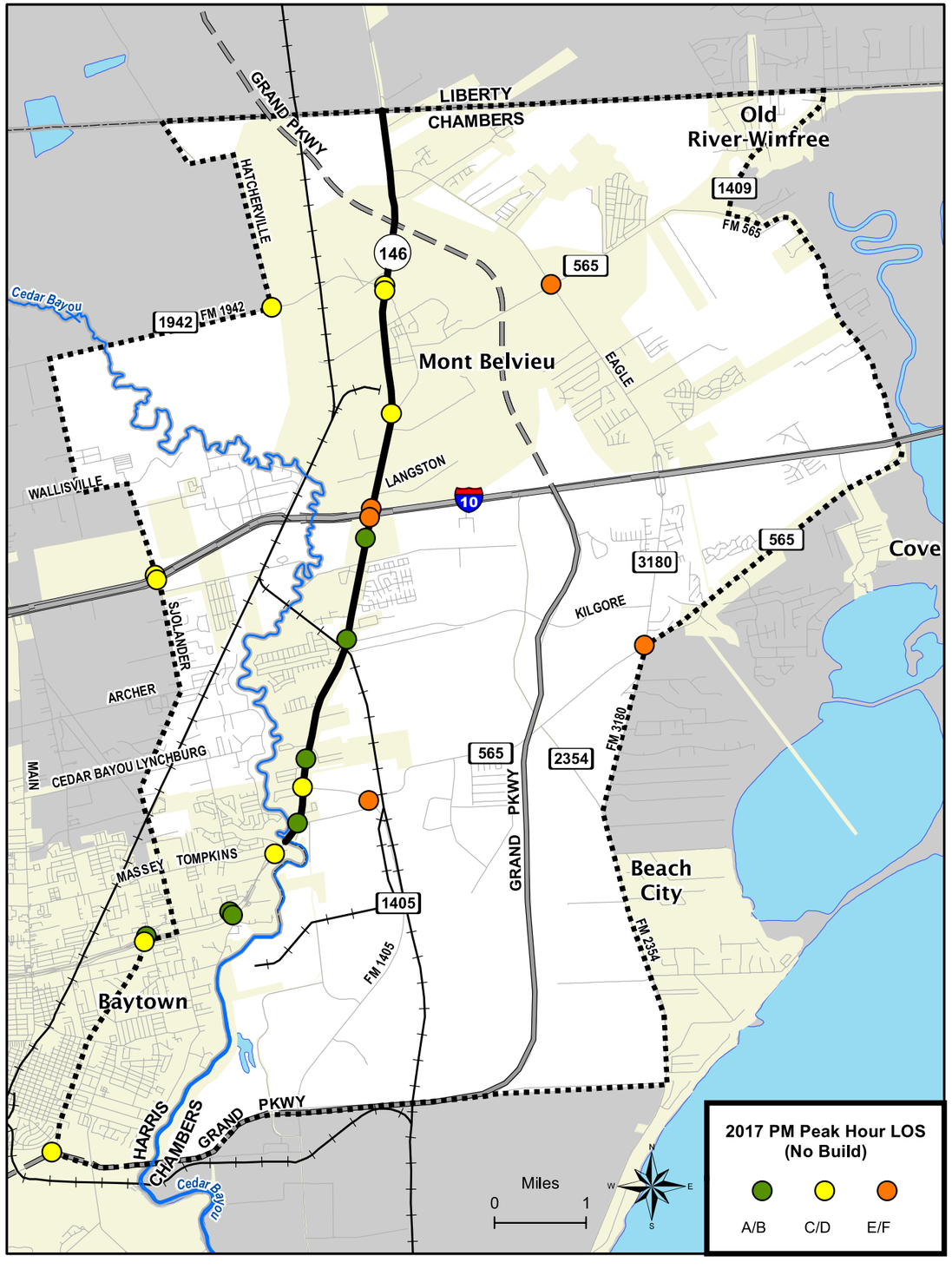
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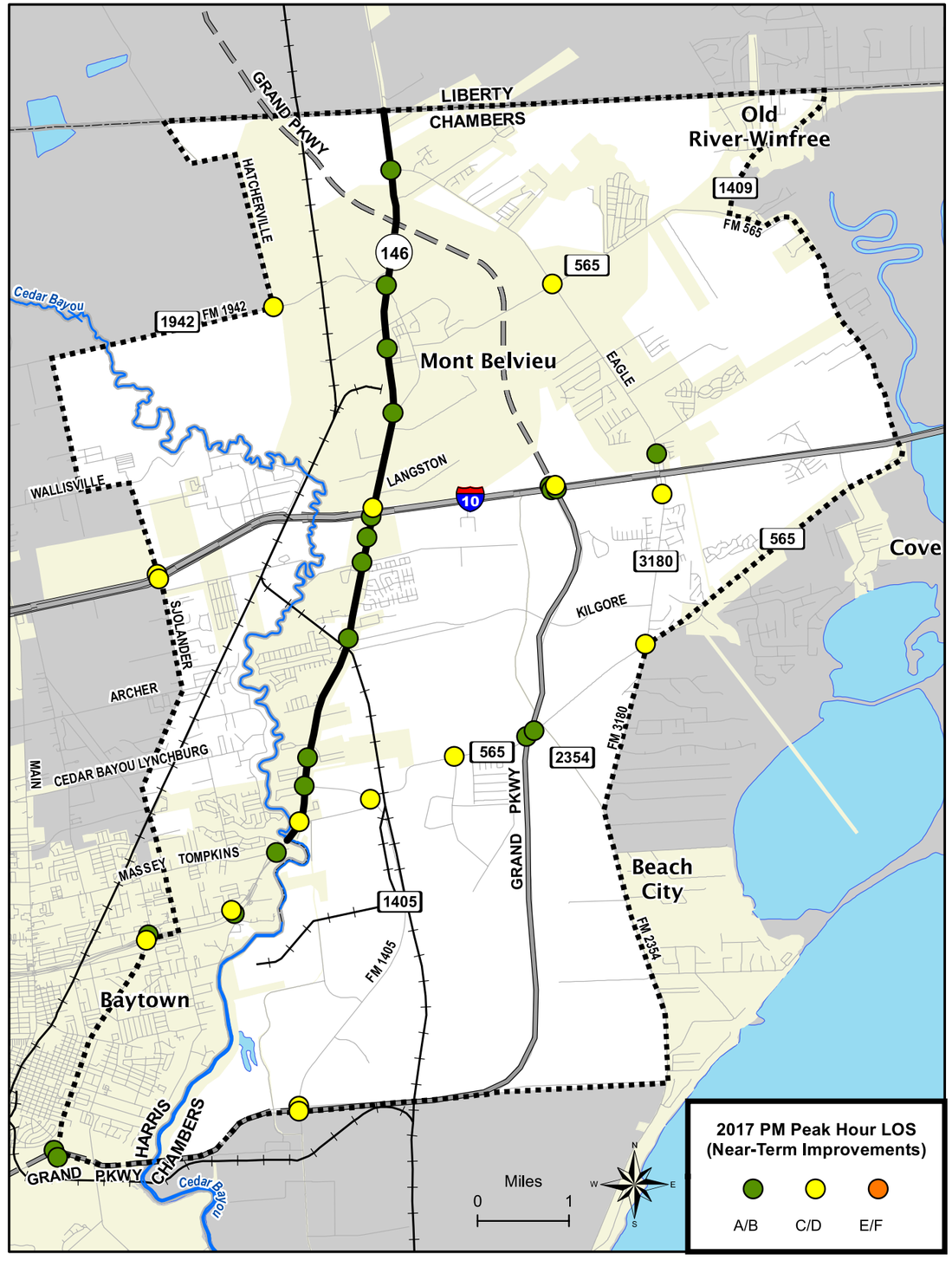
2017 PM Peak Hour LOS
(No Build)
A/B
C/D
E/F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2017 PM Peak Hour LOS
(Near-Term Improvements)
A/B
C/D
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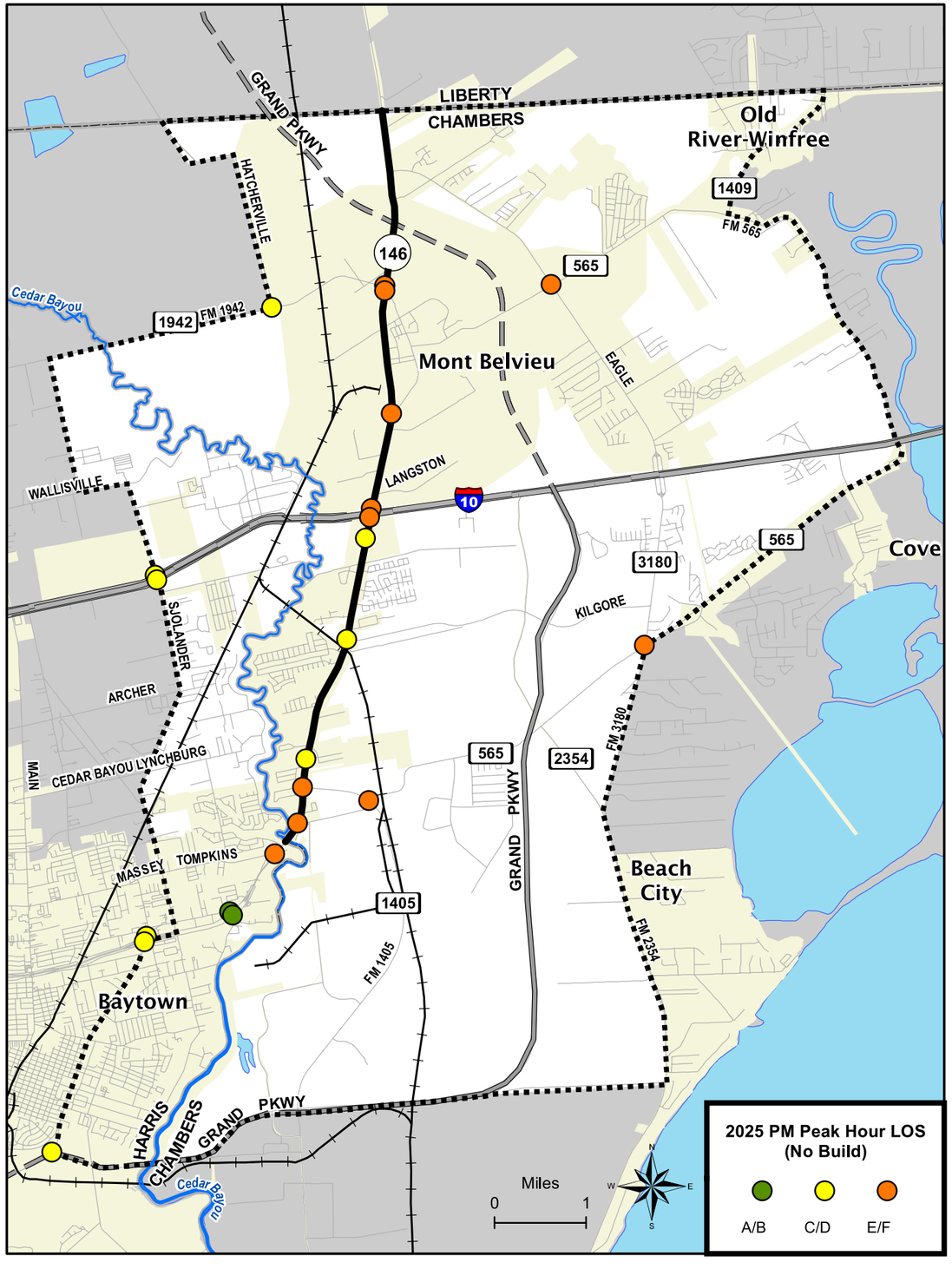
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Baytown
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CHAMBERS
GRAND PKWY
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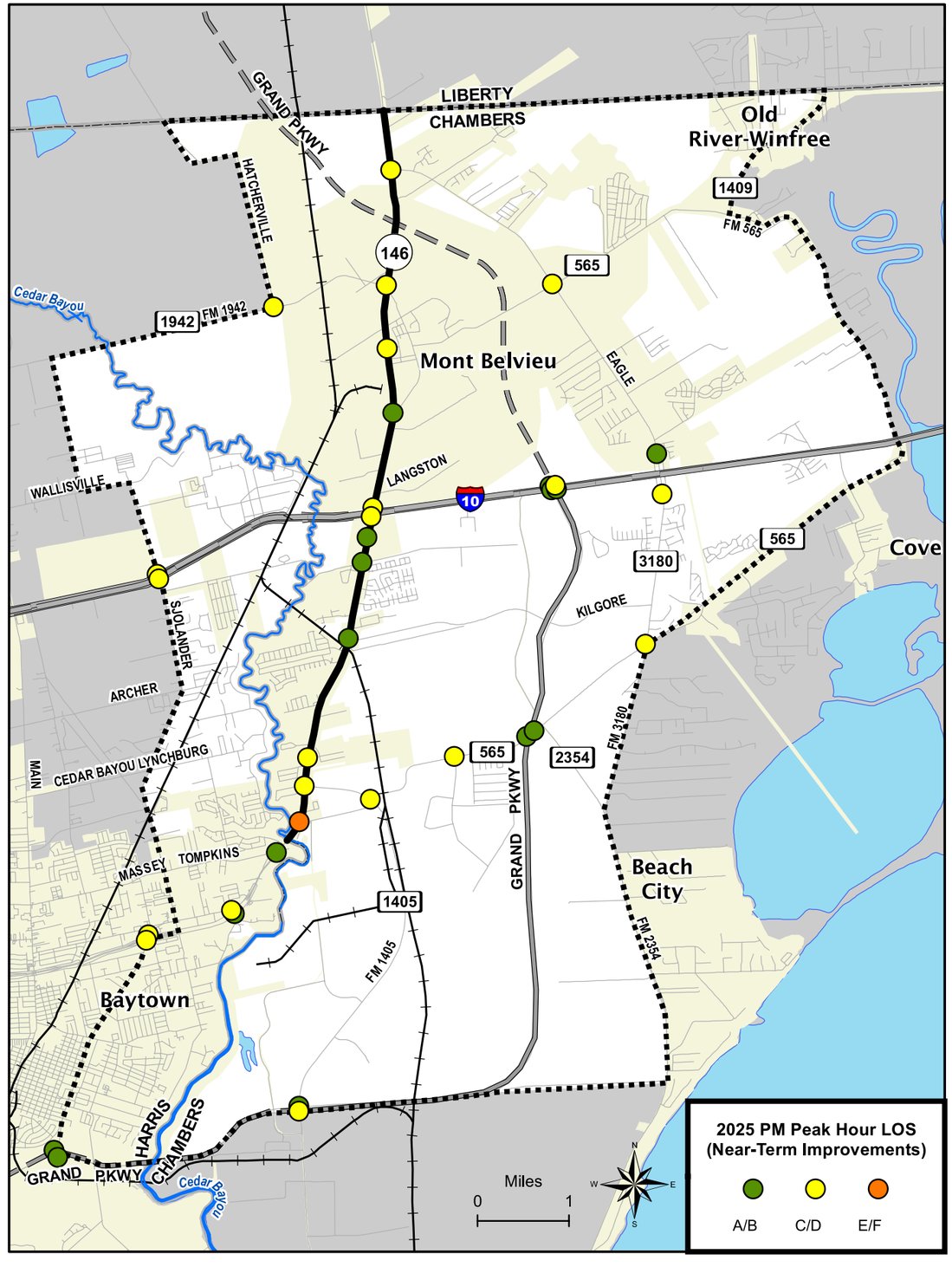
2025 PM Peak Hour LOS
(No Build)
A/B
C/D
E/F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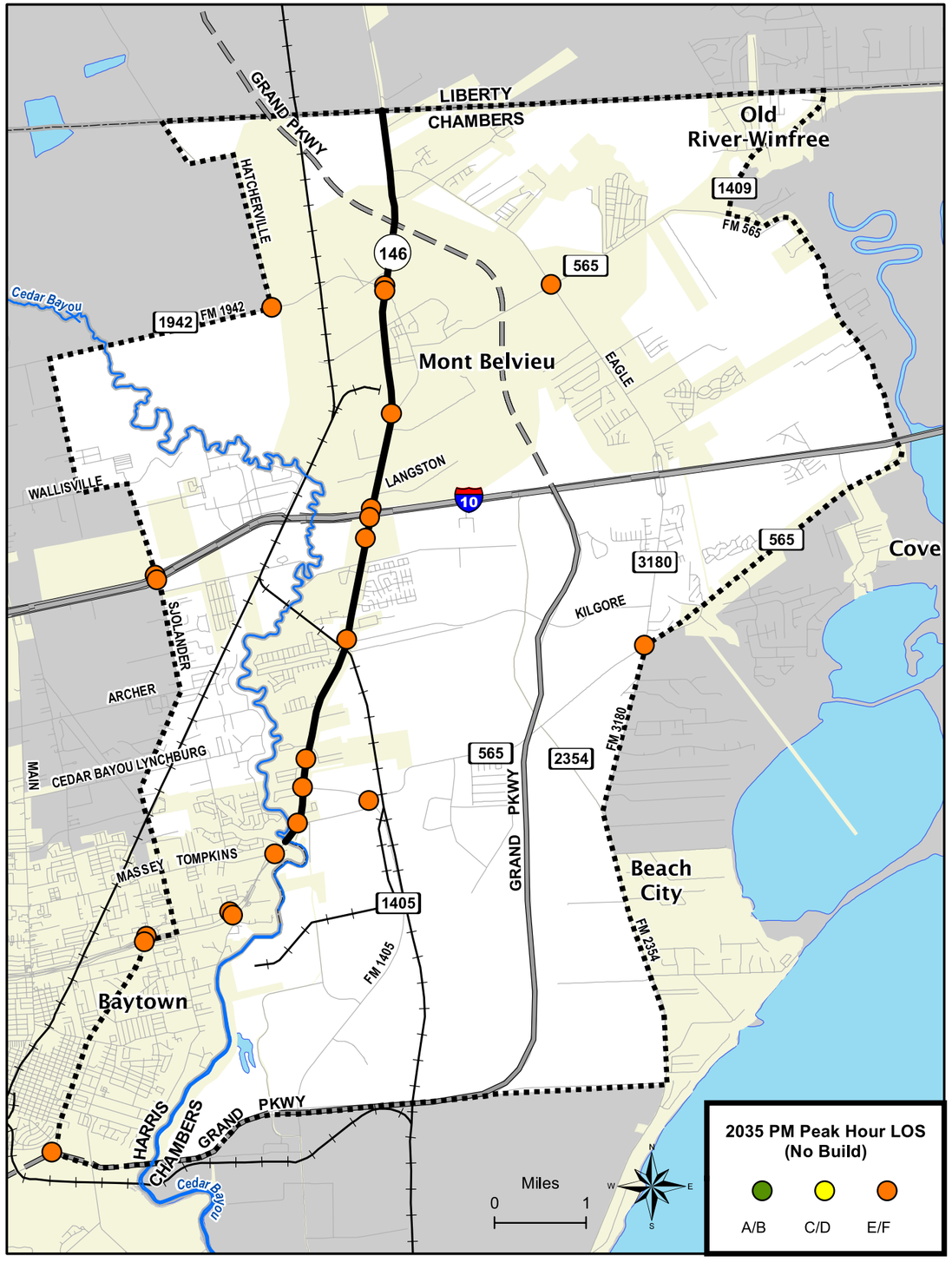
2025 PM Peak Hour LOS
(Near-Term Improvements)
A/B
C/D
E/F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Mont Belvieu
EAGLE
WALLISVILLE
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Cove
S JOLANDER
KILGORE
ARCHER
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CEDAR BAYOU LYNCHBURG
565
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FM 3180
GRAND PKWY
MASSEY
TOMPKINS
1405
Beach
City
FM 2354
FM 1405
Baytown
HARRIS
CHAMBERS
GRAND PKWY
Cedar Bayou
Miles
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N
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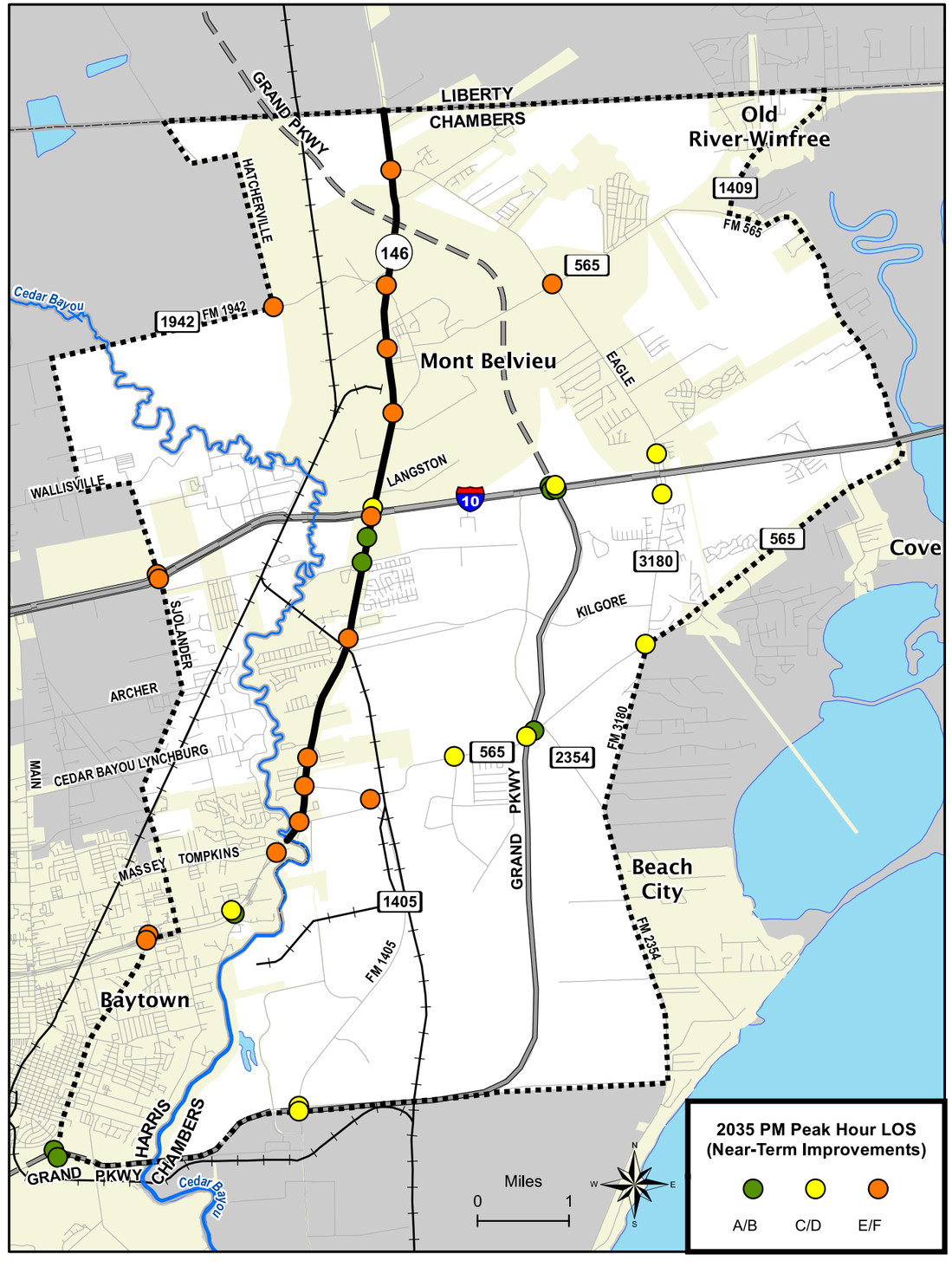
E
S
2035 PM Peak Hour LOS
(No Build)
A/B
C/D
E/F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Cedar Bayou
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EAGLE
WALLISVILLE
LANGSTON
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3180
565
Cove
S JOLANDER
KILGORE
ARCHER
MAIN
CEDAR BAYOU LYNCHBURG
565
2354
FM 3180
GRAND PKWY
MASSEY
TOMPKINS
1405
Beach
City
FM 2354
FM 1405
Baytown
HARRIS
CHAMBERS
GRAND PKWY
Cedar Bayou
Miles
0
1
N
W
E
S
2035 PM Peak Hour LOS
(Near-Term Improvements)
A/B
C/D
E/F

3. CRASH ANALYSIS

Report

Crash Analysis

The crash data was obtained for the State Highway 146 (SH 146) Sub regional study from Houston Galveston Area Council (HGAC) for the five-year period from 2011 through 2015. The study corridor is along SH 146 from Tompkins Dr to SL 479. The analysis was performed for the following two categories:

1) SH 146 Study Corridor,
2) Intersections in vicinity (but not along SH 146)

1) SH 146 Study Corridor

Crash Rates along Road Segment

Crash rate along roadway segment is reported as crashes per 100 million vehicle miles (100MVM) of travel along the roadway segment and is calculated as follows:

$$\text{Crash Rate (per 100 million vehicle miles)} = \left(\frac{\text{Number of crashes} * 100{,}000{,}000}{\text{AADT}*365*\text{L}}\right)$$

Where,
AADT = Annual Average Daily Traffic on the highway segment
L = Length of the highway segment in miles

TxDOT website provided the AADT information at multiple locations along the study corridor for the years 2011 through 2015. **Table 1** shows AADT for the entire corridor.

Table 1: AADT along SH 146 from Tompkins Dr to SL 479

Segment	AADT (vpd)				
	Year 2011	Year 2012	Year 2013	Year 2014	Year 2015
Tompkins Dr to FM 565	35,000	36,000	37,983	33,753	38,990
FM 565 to FM 1405	25,000	26,000	34,015	24,278	31,101
FM 1405 to Old Needle Point Rd	N/A	28,000	34,845	36,971	37,793
Old Needle Point Rd to I-10	29,000	30,000	38,847	26,893	35,780
I-10 to SL 207	22,000	22,000	25,735	24,861	28,353
SL 207 to FM 1942 (N)	13,500	14,500	18,360	16,293	19,001
SL 207 to FM 1942 (S)	12,900	13,200	16,278	15,164	16,919
FM 1942 to FM 3360	10,100	10,000	12,403	11,560	12,402
FM 3360 to SL 479	10,200	9,800	11,749	10,724	14,428

During the period 2011 through 2015, there were 689 reported crashes on the study corridor. Statewide average crash rates for the years 2011 through 2015 for urban state highways obtained from TxDOT website are provided in the table below. **Table 2** shows crash rates on analyzed SH 146 corridor in comparison with the statewide average crash rates.

Table 2: Crash Rates along SH 146 Study Corridor

Year	AADT (vpd)	Length (MI)	Number of Traffic Crashes	Traffic Crash Rates Per 100MVM	Statewide Average Traffic Crash Rates For Urban Highways
2011	19713	8.2	84	142.37	168.68
2012	21056	8.2	126	199.93	193.42
2013	25580	8.2	142	185.47	195.15
2014	22278	8.2	153	229.46	214.95
2015	26086	8.2	184	235.67	257.38

Figure 1 shows graphical representation of the crash rates along SH 146 corridor in comparison with the statewide average crash rates.

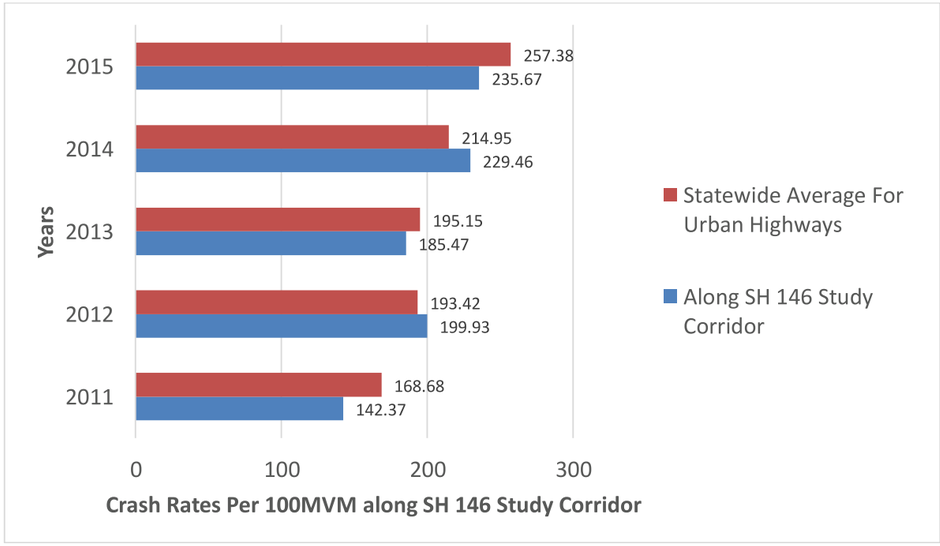


Figure 1 Crash Rates along SH 146 Study Corridor

The crash rates were observed to be higher than the statewide average crash rate for urban highways during the years 2012 and 2014.

The overall crash data for the years 2011 to 2015 along the corridor is summarized in **Figure 1** and **Figure 2**.

Figure 2 shows the breakdown of crashes by crash severity. Approximately 70% of all crashes were property-damage-only crashes, while approximately 13% of crashes involved possible injuries. Fatal crashes accounted for approximately two percent of all crashes.

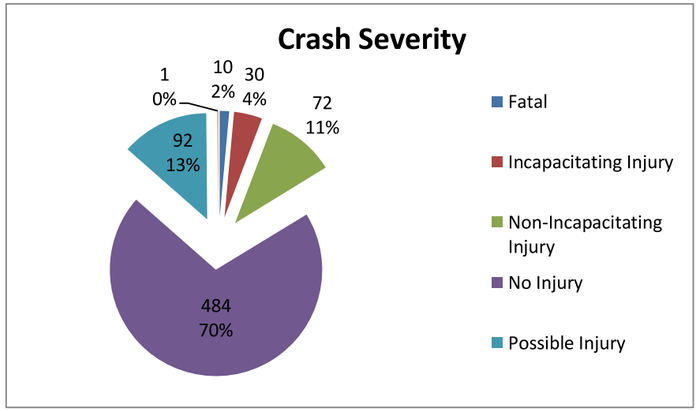


Figure 2: Crash Severity

Figure 3 shows the breakdown of crashes by manner of collision. High number of rear end collisions and angle collisions were observed along the study corridor for the years 2011 through 2015.

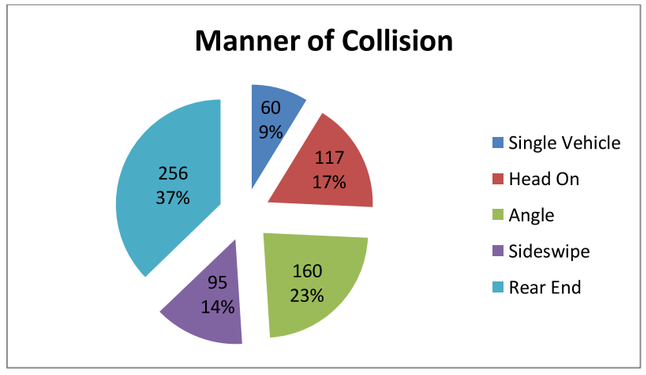


Figure 3: Manner of Collision

Crash characteristics reported on SH 146 study corridor are shown in **Table 3**Figure 3. Crash statistics show that more than 30% of collisions are caused due to slowing or stopped traffic. 22.2% of the crashes occurred when vehicle is entering/exiting the driveways. Approximately 13 % of the crashes occurred when roadway surface condition is wet. From the analysis, it was observed that about 90% of the crashes were multiple vehicle crashes. Approximately 15% of the crashes were reported during night time or low visibility conditions.

Table 3: SH 146 Study Corridor Crash Characteristics

Description	Number	%
Factors		
Lost control or skidded (icy or slick road, etc.)	3	0.43
Attention diverted from driving	51	7.40
Vehicle passing or attempting to pass on left	1	0.15
Vehicle passing or attempting to pass on right	1	0.15
Vehicle changing lanes	51	7.40
One vehicle entering driveway	41	5.95
One vehicle leaving driveway	102	14.80
Vision obstructed by headlight or sun glare	1	0.15
Swerved or veered-reason not specified	3	0.43
Swerved or veered-avoiding animal in road	1	0.15
Swerved or veered - avoid vehicle stopped or moving slowly in traffic lane	4	0.58
Swerved or veered-avoiding vehicle entering road	2	0.29
Swerved or veered-avoiding vehicle passing, changing lanes	3	0.43
Slowing/stopping-reason not specified	6	0.86
Slowing/stopping-for surface or visibility	1	0.15
Slowing/stopping - for off., flagman, or traffic control.	110	15.96
Slowing/stopping-for traffic	69	10.01
Slowing/stopping-for vehicle entering road	1	0.15
Slowing/stopping-to avoid previous accident	1	0.15
Slowing/stopping-to make right turn	11	1.59
Slowing/stopping-to make left turn	12	1.74
School bus related crash	4	0.58
Construction - within posted rd. Const. Zone (not related to crash)	4	0.58
Construction-within posted road construction zone (related to crash)	4	0.58
Not applicable	202	29.31
Roadway Surface Conditions		
Dry	603	87.51
Wet	85	12.33
Standing Water	1	0.15

Description	Number	%
Objects Struck		
Overturned	16	2.32
Hit hole in road	1	0.15
Jack-knifed	1	0.15
Hit highway sign	5	0.72
Hit culvert-headwall	6	0.87
Hit guardrail	1	0.15
Hit traffic signal pole or post	1	0.15
Hit luminaire pole	1	0.15
Hit utility pole	5	0.72
Hit mailbox	1	0.15
Hit tree, shrub, landscaping	2	0.29
Hit fence	2	0.29
Hit house, bldg. Or bldg. Fixture	1	0.15
Hit other fixed object	3	0.43
Hit median barrier	2	0.29
Fire hydrant	1	0.15
Ditch	13	1.88
Embankment	1	0.15
Not applicable	625	90.71
Other	1	0.15
Light Conditions		
Daylight	465	67.48
Dawn	23	3.33
Dark, Not Lighted	60	8.70
Dark, Lighted	120	17.41
Dusk	15	2.17
Dark, Unknown lighting	5	0.72
Other	1	0.15

The crash analysis heat map has been created to show the crash locations along the corridor on SH 146 for all the years 2011 through 2015 shown in **Figure 4**.

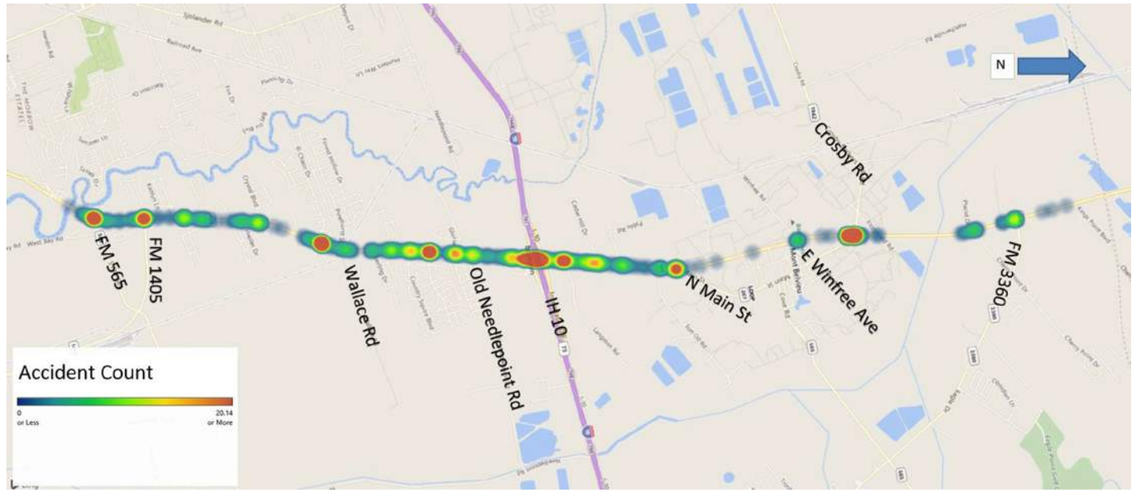


Figure 4: SH 146 Study Corridor Crash Data Heat Map

Table 4 shows number of crashes reported at some of the intersections along SH 146 study corridor during the period 2011 through 2015.

Table 4: Intersection crashes along SH 146 study corridor

Intersections	Number	%
SH 146 at FM 3360	13	1.88
SH 146 at FM 1942	54	7.83
SH 146 at SL 207 (N)	34	4.93
SH 146 at SL 207 (S)	28	4.06
SH 146 at I-10 Frontage Rd (Diamond Intersection)	108	15.67
SH 146 at Redwood Drive	33	4.79
SH 146 at El Chaco Drive	44	6.38
SH 146 at FM 1405	31	4.50
SH 146 at FM 565	42	6.09

2) Intersections in vicinity (but not along SH 146)

Crash analysis was performed at the 15 intersections based on the data provided by HGAC for the years 2011 to 2015.

No crashes were reported at the following intersections:

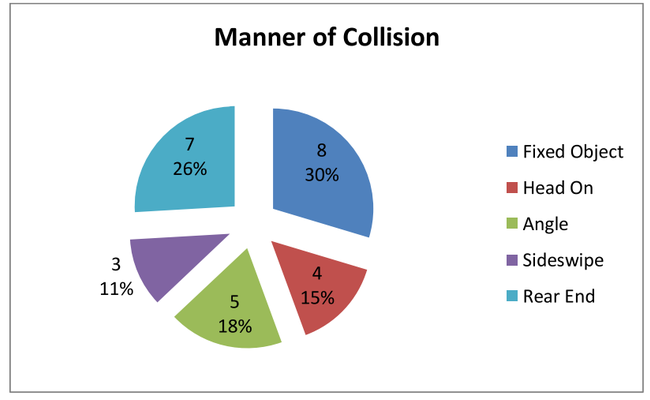
a) FM 1942 at Hadden Rd
b) I-10 frontage roads at Sjolander Dr (Diamond)
c) I-10 frontage roads at FM 565 (Diamond)
d) SH 146 at SH 99

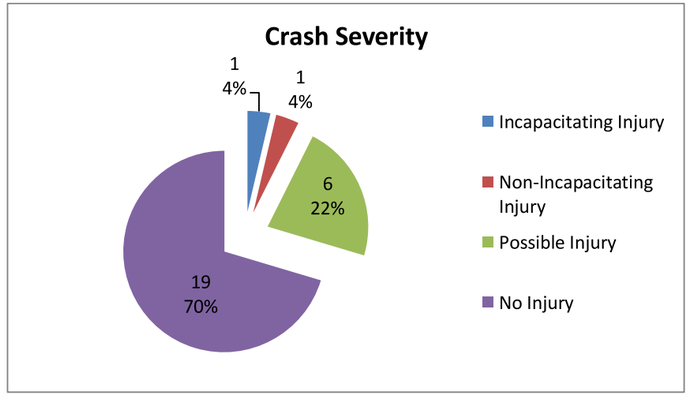
There were less than 10 crashes reported at the following intersections during the years 2011-2015:
a) SH 99 at I-10 Service Roads (Box Diamond)
b) Eagle Drive/FM 3180 at I-10 Service Roads (2 Intersections; North & South of I-10)
c) SH 99 Service Roads at FM 565 (Diamond)
d) Fm 565 at S Cotton Lake Road
e) Fm 565 at Ameriport Parkway

Crash analysis was analyzed in detail for each of the following intersections

FM 1942 at Hatcherville Road

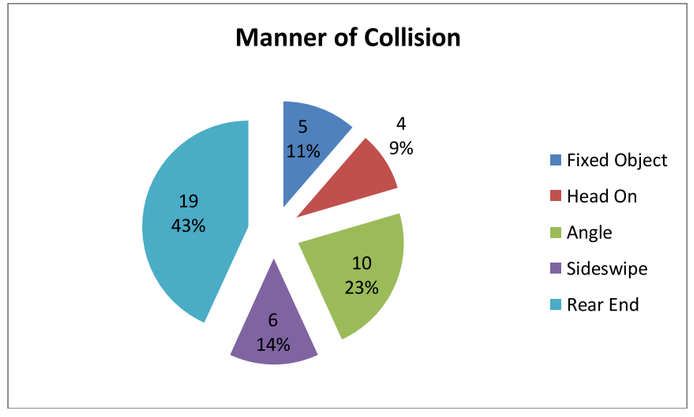
- Three-legged signalized intersection
- 27 crashes were reported between the years 2011 through 2015

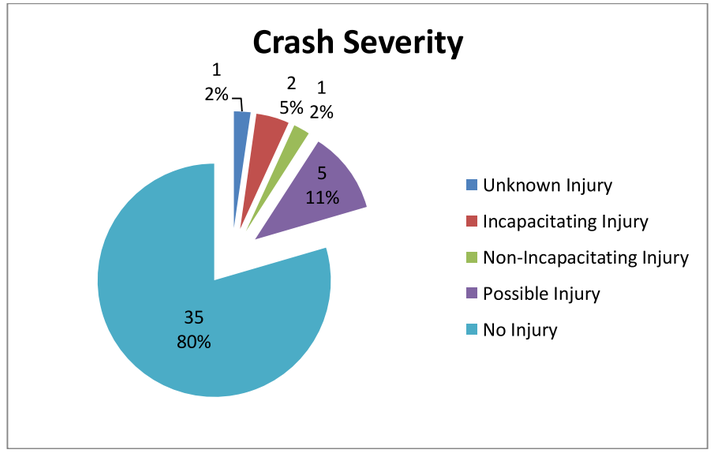




FM 565 at FM 3180

- Signalized intersection
- 44 crashes were reported between the years 2011 through 2015



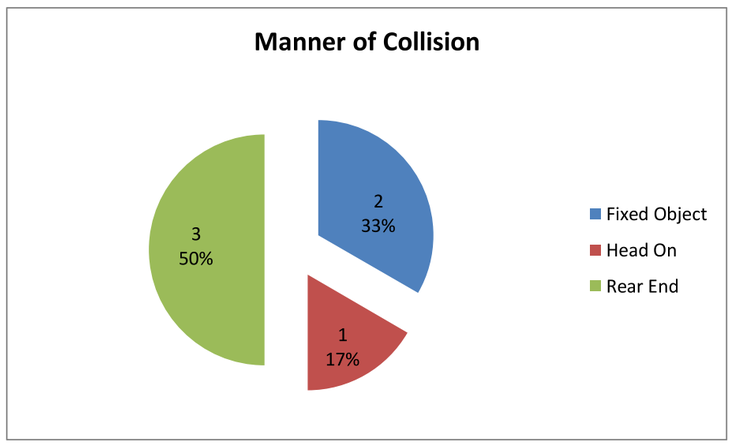


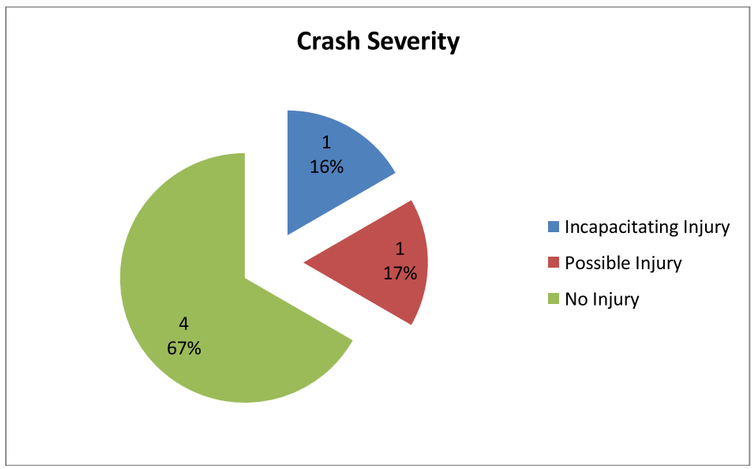
I-10 Service Road at SH-99

- Unsignalized box diamond intersection
- Only 1 crash was reported between the years 2011 through 2015

FM 3180/Eagle Drive at I-10 Service Roads (North of I-10)

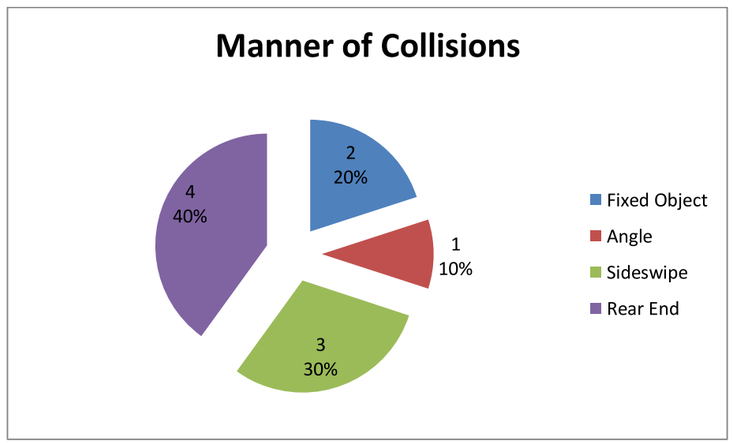
- Unsignalized intersection
- 6 crashes were reported between the years 2011 through 2015

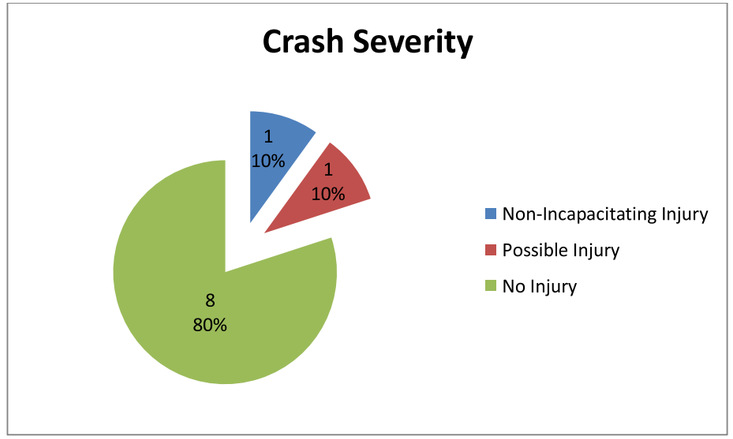




FM 3180/Eagle Drive at I-10 Service Roads (South of I-10)

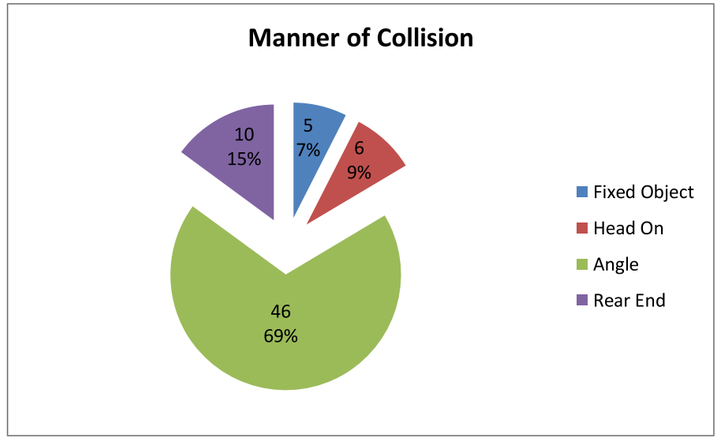
- Unsignalized intersection
- 10 crashes were reported between the years 2011 through 2015

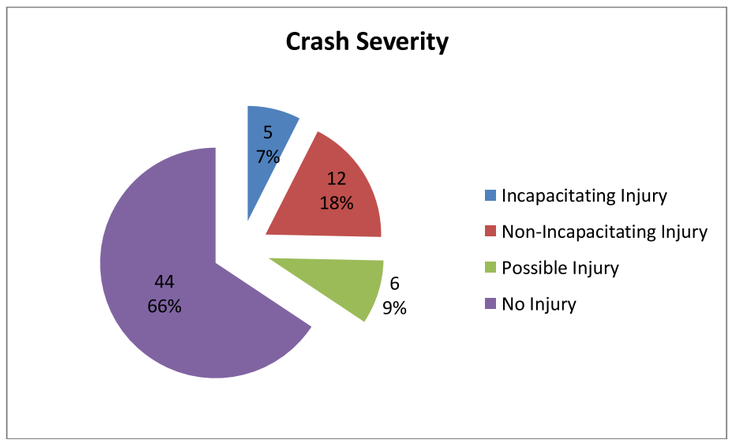




FM 565 at FM 1405

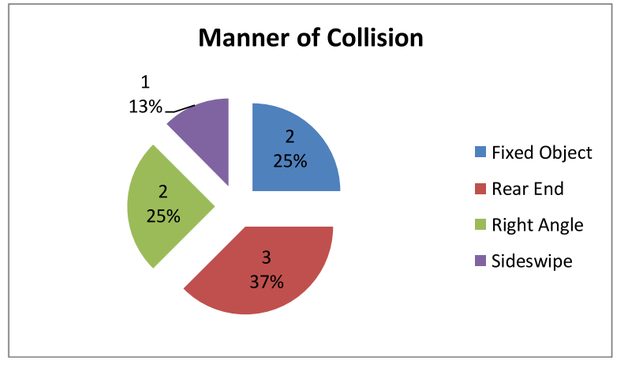
- Signalized intersection
- 67 crashes were reported between the years 2011 through 2015

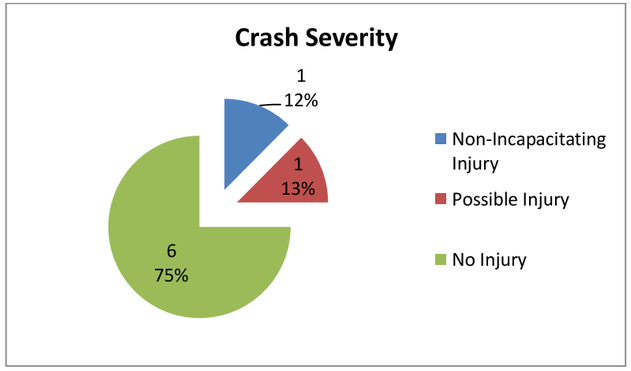




FM 565 at Ameriport Parkway

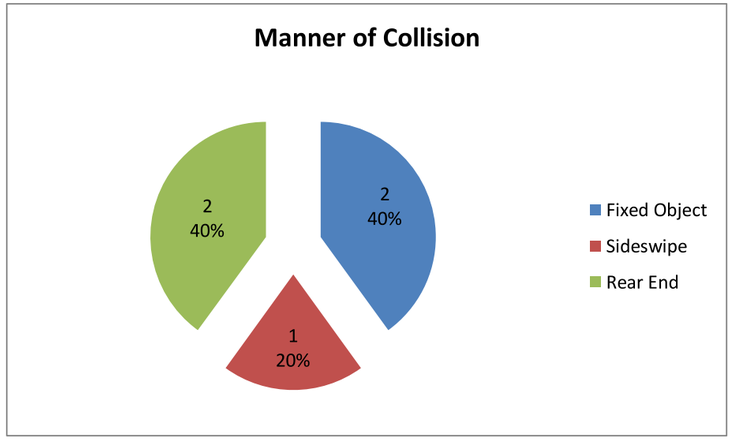
- Skewed Unsignalized intersection
- 8 crashes were reported between the years 2011 through 2015

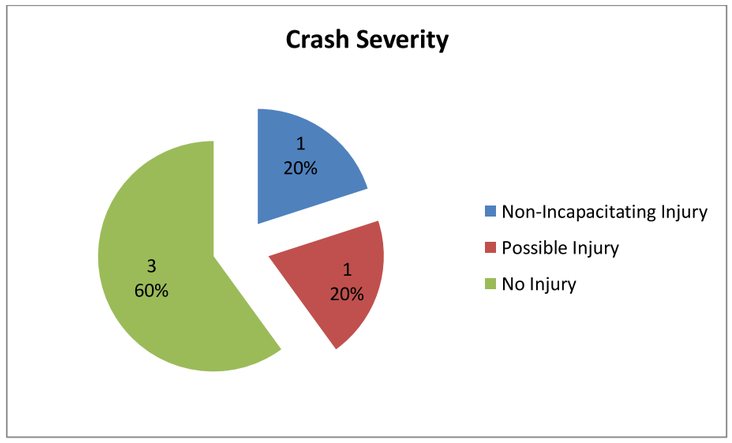




FM 565 at SH-99 Service Roads

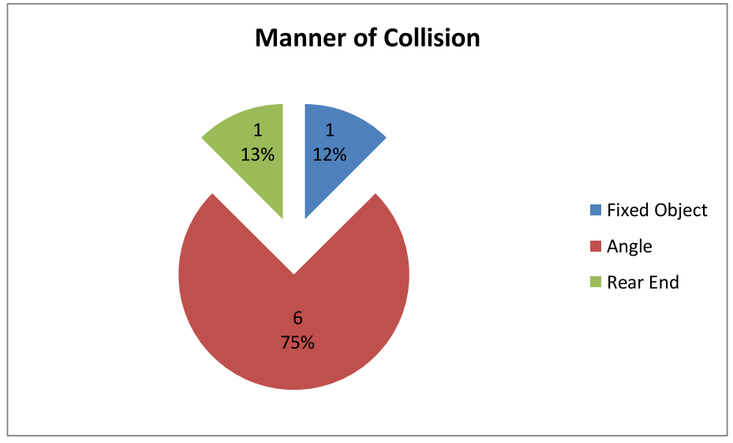
- Skewed Unsignalized intersections
- 5 crashes were reported between the years 2011 through 2015

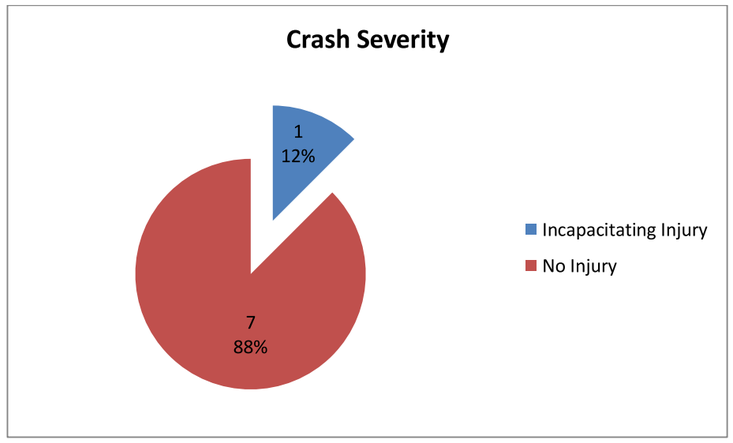




FM 565 at S Cotton Lake Road

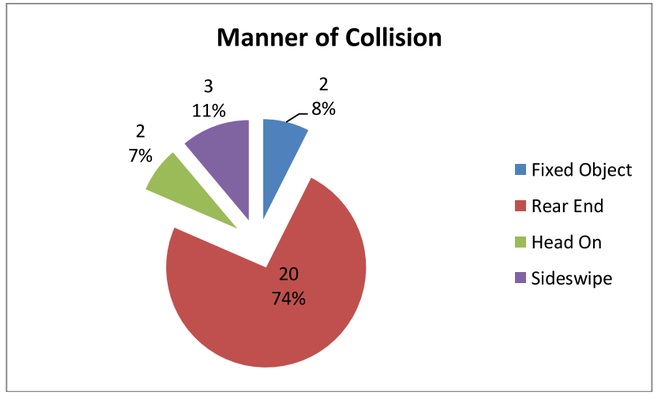
- Unsignalized three-legged intersection
- 8 crashes were reported between the years 2011 through 2015

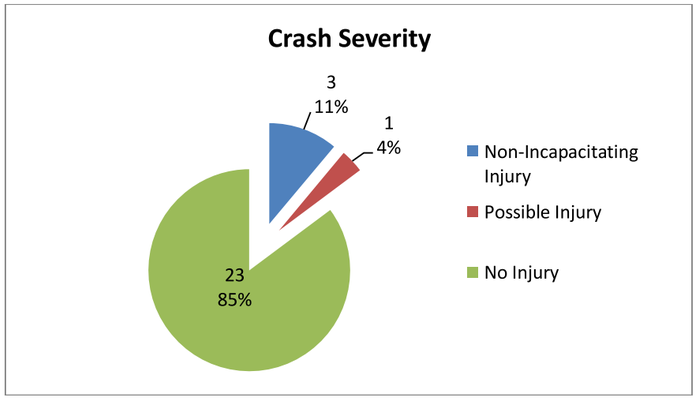




FM 565 at FM 3180

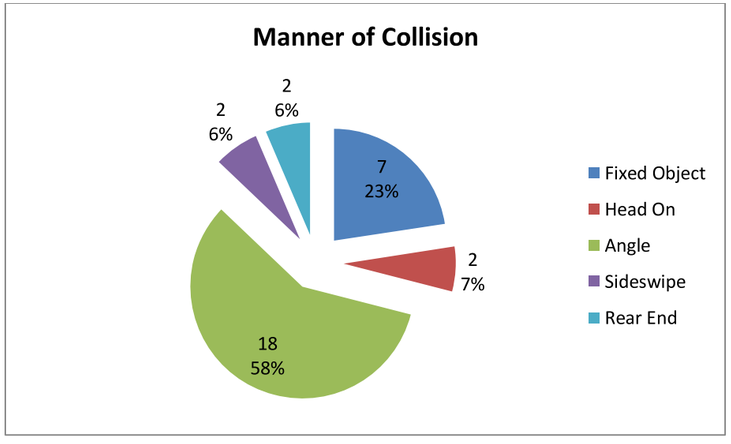
- Signalized intersection
- 27 crashes were reported between the years 2011 through 2015

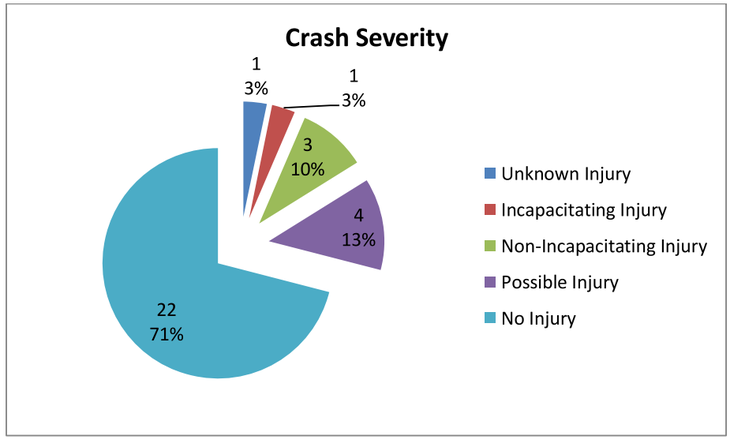




SH 99 at FM 1405

- Signalized intersection
- 31 crashes were reported between the years 2011 through 2015





SH 146 Corridor Accident Analysis

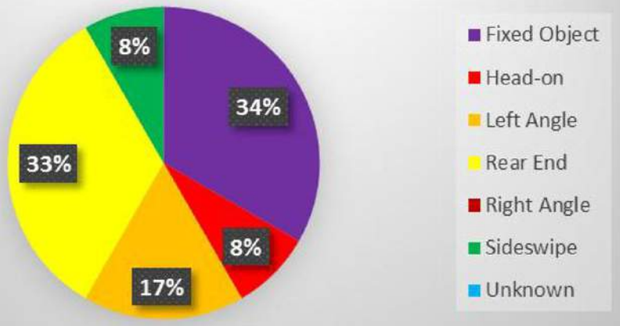
Intersection	Collision Type	Number of Collisions (Years 2011 to 2015) *	Recommendations	Comments
FM 1942 at Hatcherville (Signalized)	Fixed Object	8	• Refurbish pavement markings on all approaches • Review Yellow and All-Red timings and make sure they conform to TMUTCD/ITE guidelines • Investigate adequacy of turning radius for design vehicle to prevent off-tracking from pavement	Traffic signal installed in 2016 Turning vehicles tyre marks observed on ground
	Rear End	7		
	Angle	5		
	Head-on	4		
	Sideswipe	3		
FM 565 at Eagle Drive/FM 3180 (Signalized)	Rear End	19	• Review Yellow and All-Red timings and conform to TMUTCD guidelines • Refurbish pavement markings on all approaches • Install raised median on eastbound and westbound approaches of FM 565 • Add advanced warning signs for signal	NB/SB medians installed ~ 2011 to 2013. Intersection has been signalized since 2011
	Angle	10		
	Sideswipe	6		
	Fixed Object	5		
	Head-on	4		
I-10 Service Road at SH-99 (Unsignalized)	Fixed Object	1	• Upgrade curb ramps to meet current ADA standards and guidelines	Only 1 crash reported in 5 years
FM 3180/Eagle Drive at I-10 Service Roads (North of I-10) (Unsignalized)	Rear End	3	• Refurbish pavement markings on all approaches • Provide intersection lighting • Install street name signs • Conduct Traffic signal warrant study • Install W4-4P plaque "CROSS TRAFFIC DOES NOT STOP" beneath the STOP signs on I-10 frontage roads at their intersection with Eagle Drive	This intersection is being upgraded to a diamond
	Fixed Object	2		
	Head-on	1		
FM 3180/Eagle Drive at I-10 Service Roads (South of I-10) (Unsignalized)	Rear End	4	• Refurbish pavement markings on all approaches • Install intersection lighting • Install street name signs • Conduct Traffic signal warrant study • Install W4-4P plaque "CROSS TRAFFIC DOES NOT STOP" beneath the STOP signs on I-10 frontage roads at their intersection with Eagle Drive	
	Sideswipe	3		
	Fixed Object	2		
	Angle	1		
FM 565 at FM 1405 (Signalized)	Angle	46	• Refurbish pavement markings on all approaches • Install curb ramps and pedestrian signal heads to meet current ADA standards and guidelines • Install a raised median for the dual-mast arm signal poles on the north and south corners for safety purposes, to serve as pedestrian refuge as well as to accomodate the design vehicles • Install W3-3 advance warning sign on eastbound and westbound of FM 565	Short Term - add raised medians Long Term - Grade seperation
	Rear End	10		
	Head-on	6		
	Fixed Object	5		
FM 565 at Ameriport Parkway (Unsignalized)	Rear End	3	• Conduct STOP warrant study at this intersection • Add dedicated left turn lane from FM 565 to Ameriport • Install street name signs • Install lane-assignment signs on all approaches • Install lane-assignment pavement markings • Install intersection lighting	A new approach has been added to this intersection from the north side in 2014
	Fixed Object	2		
	Right Angle	2		
	Sideswipe	1		
FM 565 at SH-99 Service Roads (Unsignalized)	Rear End	2	• Add solar powered flashing beacons on stop signs • Refurbish pavement markings on all approaches • Install lane-assignment signs • Install intersection lighting • Perform Traffic signal warrant study • Install curb ramps to meet current ADA standards and guidelines	
	Fixed Object	2		
	Sideswipe	1		
FM 565 at S Cotton Lake Road (Unsignalized)	Angle	6	• Conduct Signal warrant study • Run on same controller as SH 99 frontage intersections • Add illumination • Refurbish pavement markings on all approaches • Add striped island for EB right turn lane onto S Cotton Lake • Upgrade curb ramps to meet current ADA standards and guidelines • Install street name signs	
	Rear End	1		
	Fixed Object	1		
FM 565 at FM 3180 (Signalized)	Rear End	20	• Upgrade curb ramps to meet current ADA standards and guidelines • Conduct sight distance analysis for westbound approach	Road expansion and signal updation project still underway as of June 2017
	Sideswipe	3		
	Fixed Object	2		
	Head-on	2		
SH 99 at FM 1405 (Unsignalized)	Angle	18	• Solar powered flasing beacon • Add illumination • Install lane-assignment signs • Install street name signs • Conduct Traffic signal warrant study • Upgrade curb ramps to meet current ADA standards and guidelines	
	Fixed Object	7		
	Head-on	2		
	Sideswipe	2		
	Rear End	2		

* Collision Information provided by TxDOT

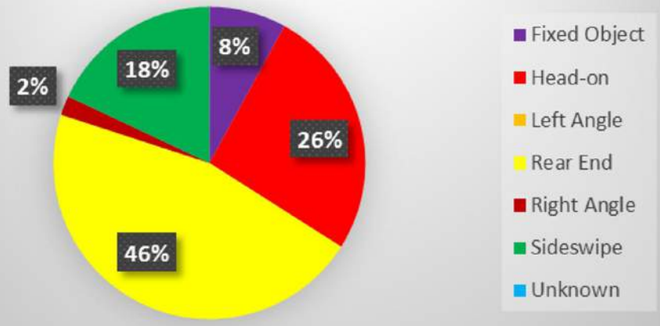
SH 146 Crash Data Exhibits

Crash Data Metrics (By Intersection)		Total	Severity			Type			
Node	Intersection		Fatal	Injury	Property Only	Head-On	Rear-End	Angled	Other
1	SH 146 @ Eagle Drive	12	0	6	6	1	4	3	4
2	SH 146 @ FM 1942	50	1	18	31	13	23	10	4
3	SH 146 @ Loop 207 N	34	0	11	23	16	12	6	0
4	SH 146 @ Equistar Chemicals Drwy	1	0	0	1	0	0	1	0
5	SH 146 @ Williams St	1	0	0	1	0	1	0	0
6	SH 146 @ Chevron Truck Drwy	0	0	0	0	0	0	0	0
7	SH 146 @ LP 207/Targa Drwy	26	0	3	23	3	17	4	2
8	SH 146 @ Targa Employee Parking/Sun Oil Rd	6	0	2	4	1	3	0	2
9	SH 146 @ Truck Stop Drwy	16	1	0	15	2	8	5	1
10	SH 146 @ I-10 WBFR	116	0	21	95	4	58	50	4
11	SH 146 @ I-10 EBFR	68	1	10	57	12	24	29	3
12	SH 146 @ Walmart Drwy	17	0	5	12	6	8	3	0
13	SH 146 @ Main Walmart Drwy	2	0	1	1	0	2	0	0
14	SH 146 @ Old Needlepoint Rd	4	0	0	4	0	1	3	0
15	SH 146 @ Kilgore Pkwy	2	0	0	2	0	1	0	1
16	SH 146 @ Pinehurst St	5	0	0	5	0	2	1	2
17	SH 146 @ Clark Elementary School Drwy/Devinwood Dr	11	0	4	7	3	5	1	2
18	SH 146 @ FM 1405/N Twisted Oak St	30	0	10	20	11	16	3	0
19	SH 146 @ FM 565	39	0	17	22	3	27	8	1
20	SH 146 @ Tompkins Dr	18	1	4	13	4	8	5	1
21	SH 146 @ Massey Tompkins Rd	45	0	16	29	4	27	9	5
22	SH 146 @ Ferry Rd	38	0	10	28	0	20	10	8
23	SH 146 SB @ N. Alexander Dr	10	0	2	8	2	3	3	2
24	SH 146 NB @ N. Alexander Dr	0	0	0	0	0	0	0	0
25	N Alexander Dr (SH 146B) @ SH 146 WBFR	0	0	0	0	0	0	0	0
26	N Alexander Dr (SH 146B) @ SH 146 EBFR	0	0	0	0	0	0	0	0
101	FM 1942 @ Hadden Rd	0	0	0	0	0	0	0	0
102	FM 1942 @ Hatcherville Rd	21	0	6	15	3	9	3	6
103	FM 565 @ FM 3360	39	0	8	31	4	24	7	4
104	Sjolander Rd @ I-10 WBFR	12	0	1	11	0	3	5	4
105	Sjolander Rd @ I-10 EBFR	0	0	0	0	0	0	0	0
106	SH 99 SBFR @ I-10 WBFR	3	0	0	3	0	2	0	1
107	SH 99 NBFR @ I-10 WBFR	21	0	3	18	0	4	5	12
108	SH 99 SBFR @ I-10 EBFR	0	0	0	0	0	0	0	0
109	SH 99 NBFR @ I-10 EBFR	1	0	0	1	0	0	0	1
110	Eagle Drive (FM 3180) @ I-10 WBFR	6	0	2	4	1	3	0	2
111	Eagle Drive (FM 3180) @ I-10 EBFR	13	0	3	10	0	8	3	2
112	FM 565 @ I-10 WBFR	1	0	0	1	0	0	1	0
113	FM 565 @ I-10 EBFR	0	0	0	0	0	0	0	0
114	FM 565 @ FM 1405	61	0	19	42	5	40	12	4
115	FM 565 @ Ameriport Pkwy	8	0	2	6	0	3	3	2
116	FM 565 @ SH 99 SBFR	3	0	2	1	0	1	0	2
117	FM 565 @ SH 99 NBFR	2	0	0	2	0	1	1	0
118	FM 565 @ FM 2354 (S Cotton Lake Road)	7	0	1	6	0	6	1	0
119	FM 565 @ Eagle Drive (FM 3180)	22	0	4	18	2	14	5	1
120	SH 146B @ SH 99	0	0	0	0	0	0	0	0
121	FM 1405 @ SH 99 WBFR	18	0	4	14	1	10	3	4
122	FM 1405 @ SH 99 EBFR	15	0	4	11	1	9	2	3

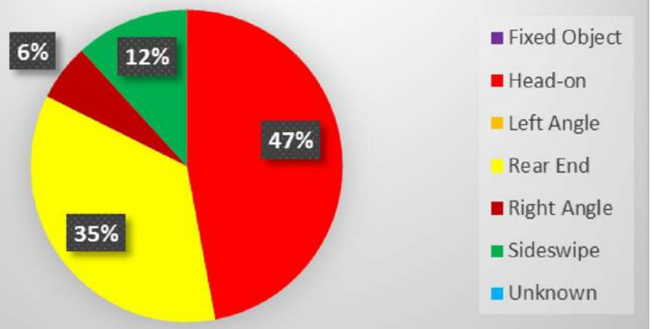
Crash Type: SH 146 @ Eagle Drive



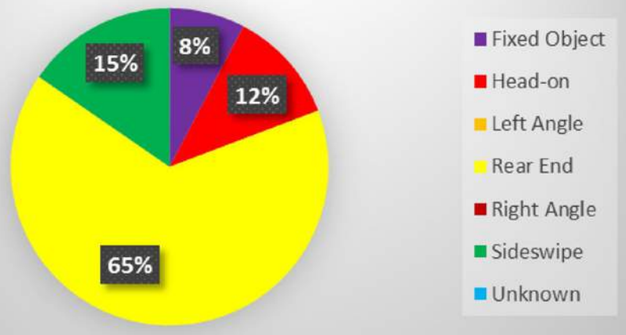
Crash Type: SH 146 @ FM 1942



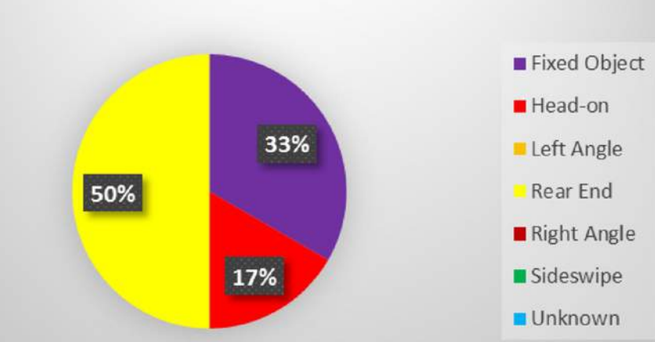
Crash Type: SH 146 @ Loop 207 N



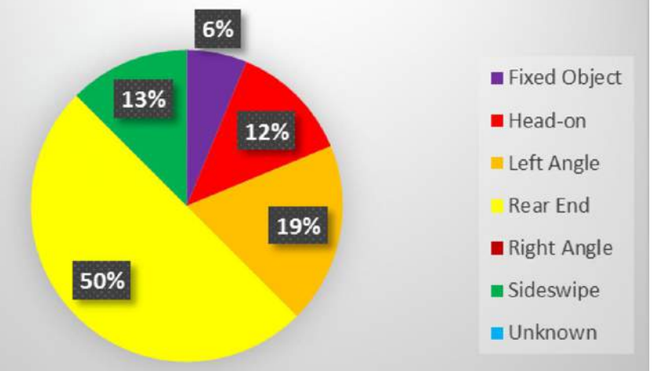
Crash Type: SH 146 @ LP 207/Targa Drwy



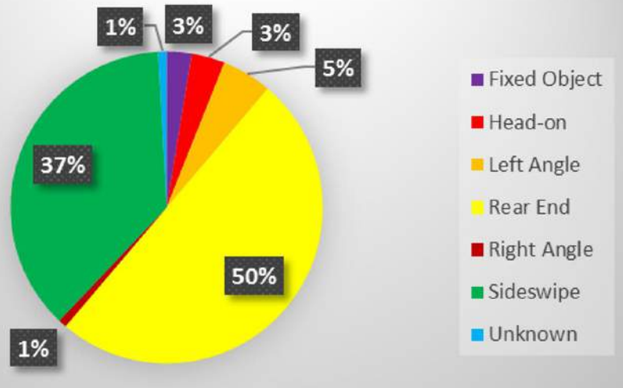
Crash Type: SH 146 @ Targa Employee Parking/Sun Oil Rd



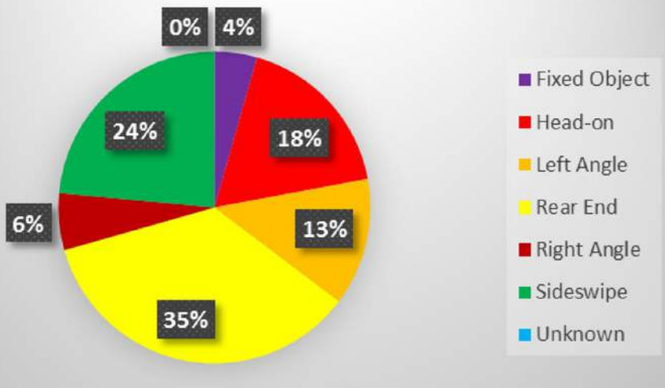
Crash Type: SH 146 @ Truck Stop Drwy



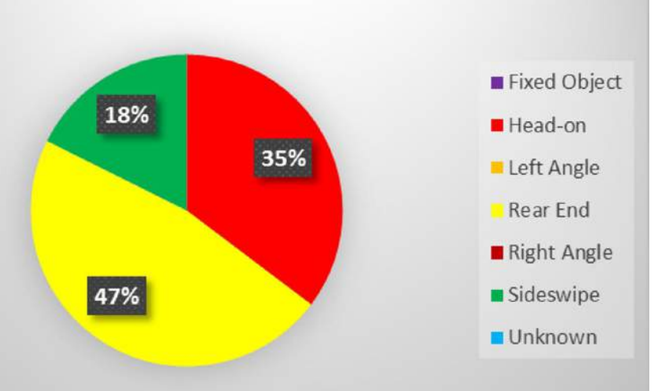
Crash Type: SH 146 @ I-10 WBFR



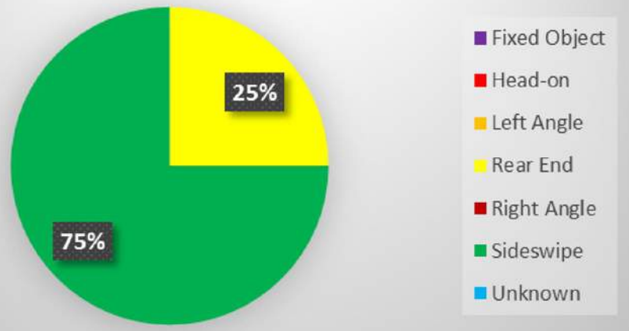
Crash Type: SH 146 @ I-10 EBFR



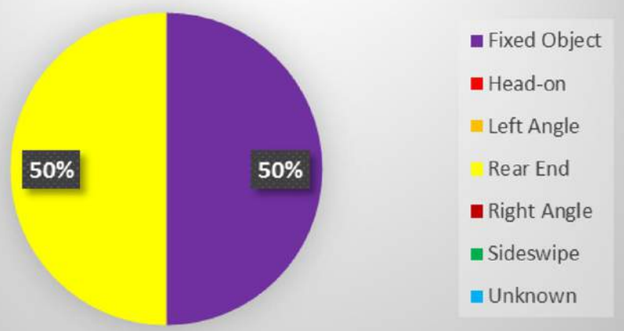
Crash Type: SH 146 @ Walmart Drwy



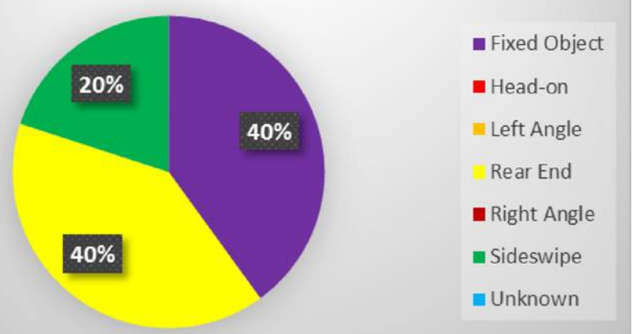
Crash Type: SH 146 @ Old Needlepoint Rd



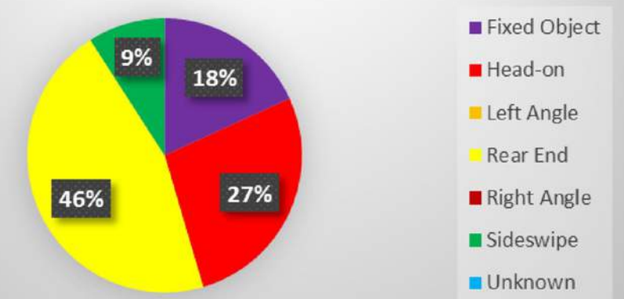
Crash Type: SH 146 @ Kilgore Pkwy



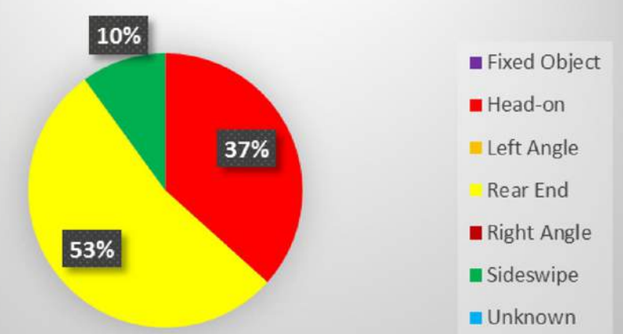
Crash Type: SH 146 @ Pinehurst St



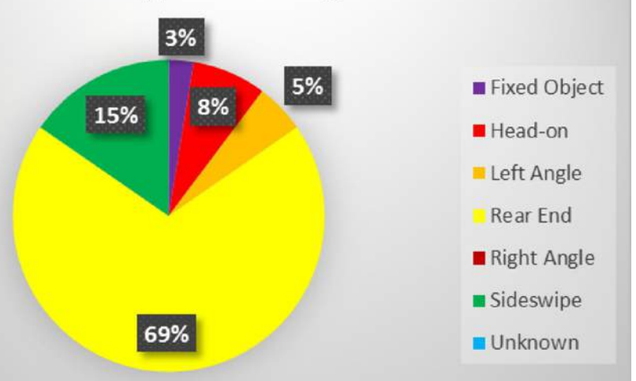
Crash Type: SH 146 @ Clark Elementary School Drwy/Devinwood Dr



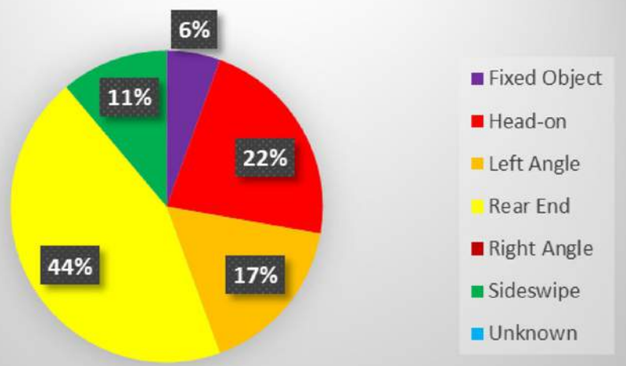
Crash Type: SH 146 @ FM 1405/N Twisted Oak St



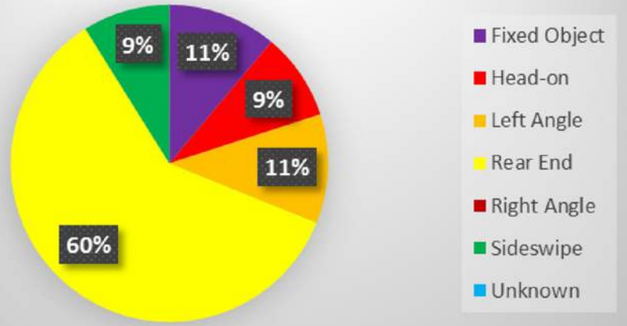
Crash Type: SH 146 @ FM 565



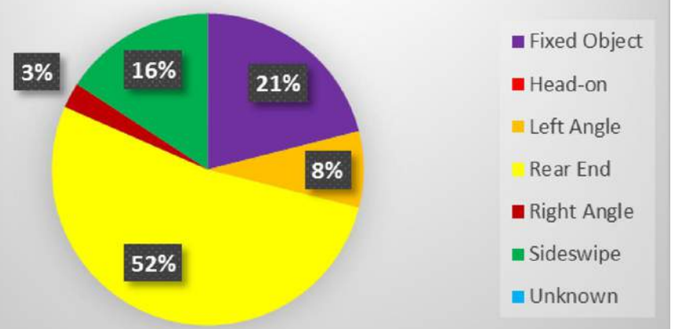
Crash Type: SH 146 @ Tompkins Dr



Crash Type: SH 146 @ Massey Tompkins Rd



Crash Type: SH 146 @ Ferry Rd



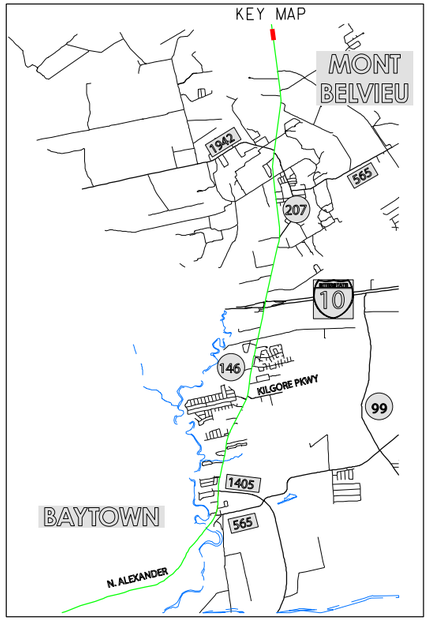
DATE: 3/26/2018

0 25 50 75 100

APPROX. SCALE: 1"=100'

LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION



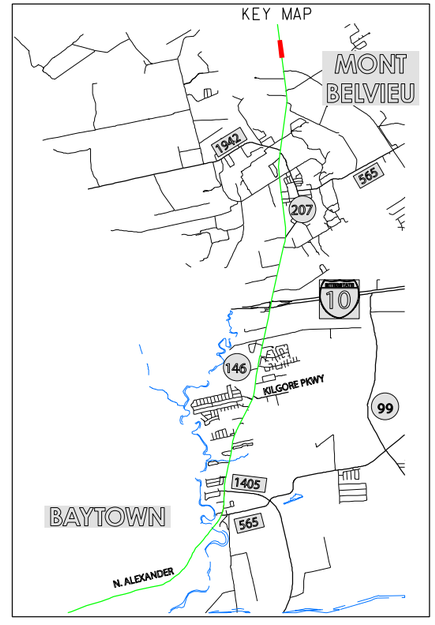
DATE: 3/26/2018

0 25 50 75 100

APPROX. SCALE: 1"=100'

LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION

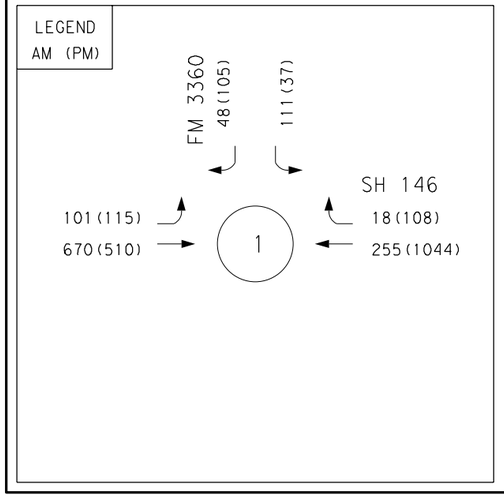


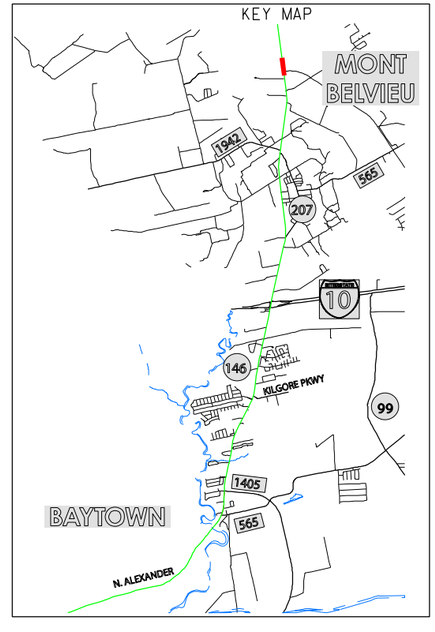
DATE: 3/26/2018

0 25 50 75 100

APPROX. SCALE: 1"=100'

LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION





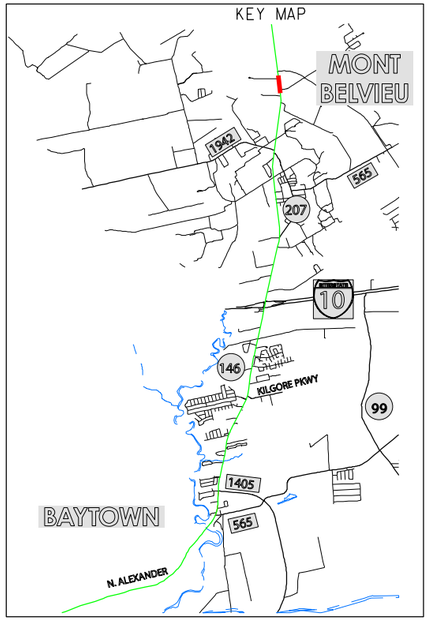
DATE: 3/26/2018

0 25 50 75 100

APPROX. SCALE: 1"=100'

LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION



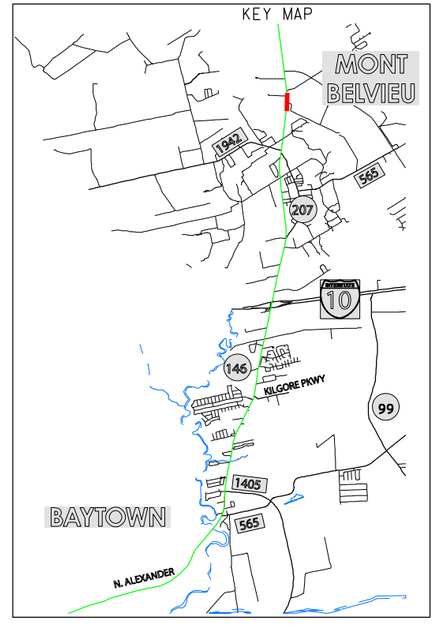
DATE: 3/28/2018

0 25 50 75 100

APPROX. SCALE: 1"=100'

LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION



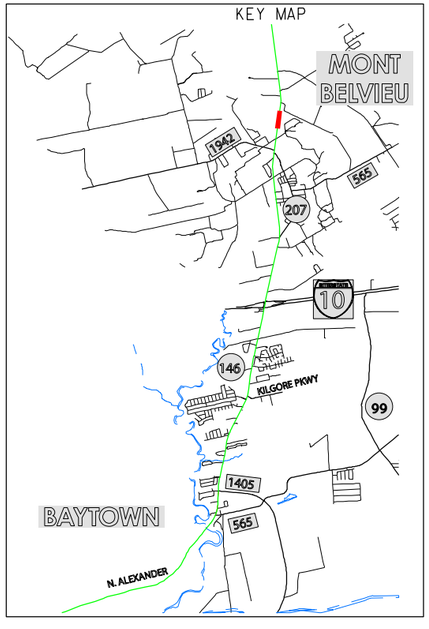
DATE: 3/26/2018

0 25 50 75 100

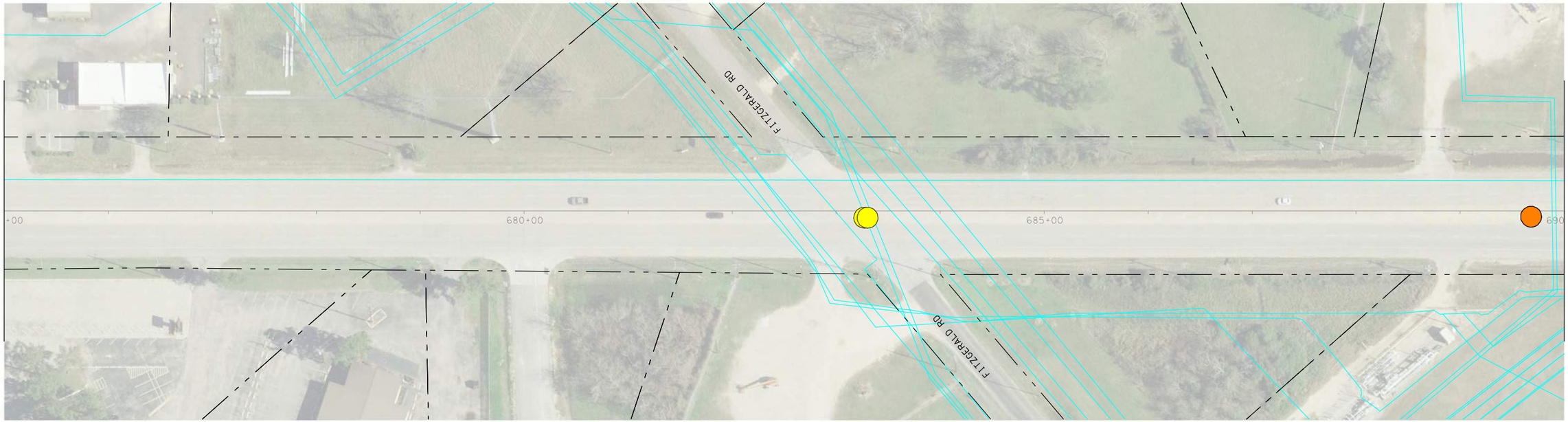
APPROX. SCALE: 1"=100'

LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION



DATE: 3/26/2018

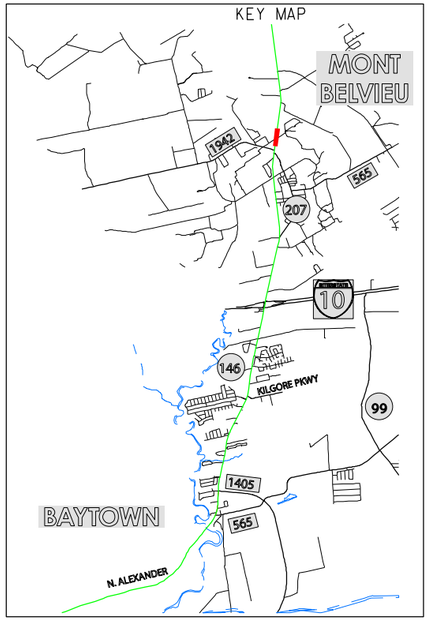


0 25 50 75 100

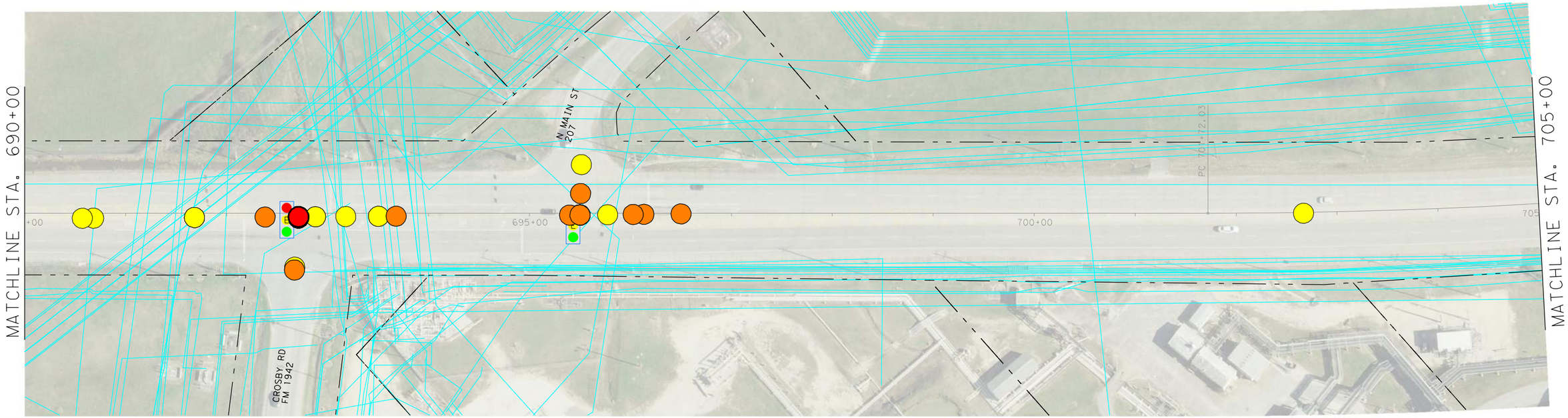
APPROX. SCALE: 1"=100'

LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION

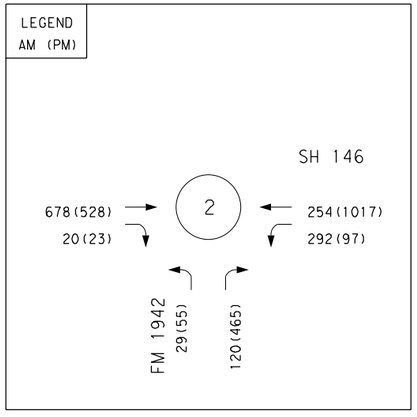


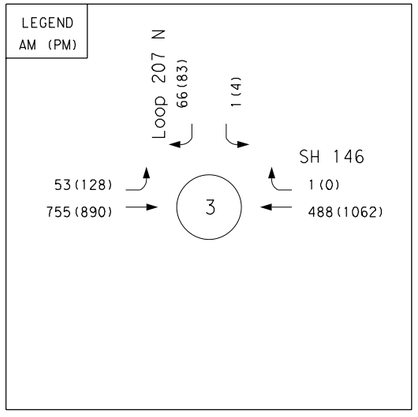
DATE: 3/26/2018

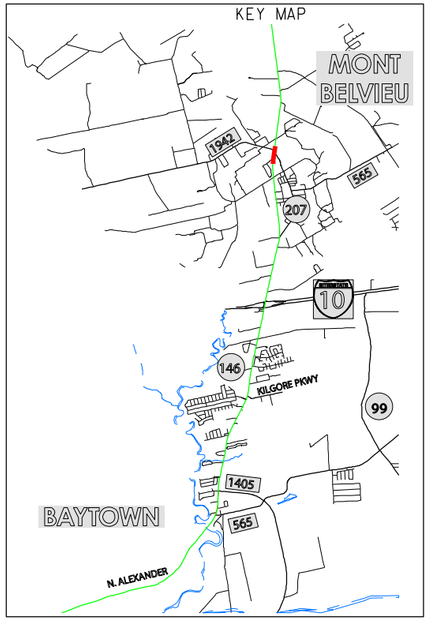


0 25 50 75 100
APPROX. SCALE: 1"=100'

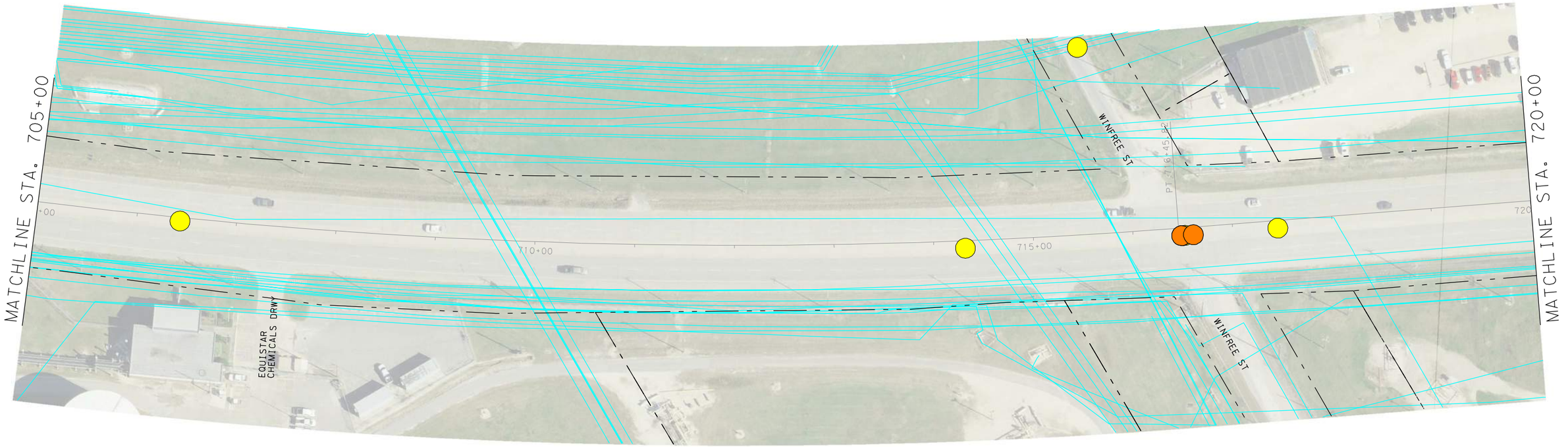
LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION







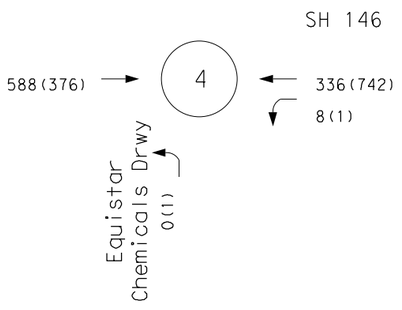
DATE: 3/26/2018



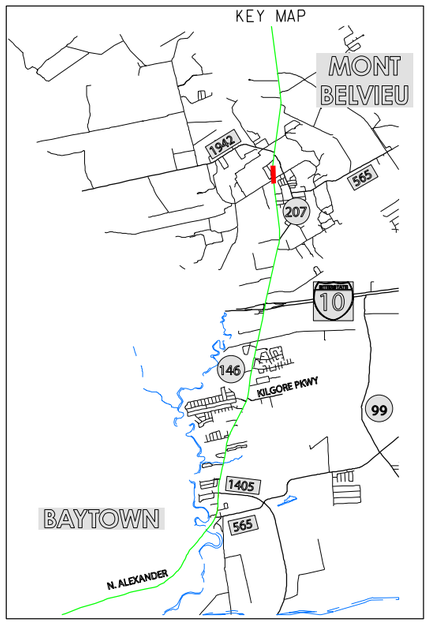
0 25 50 75 100
APPROX. SCALE: 1"=100'

LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION

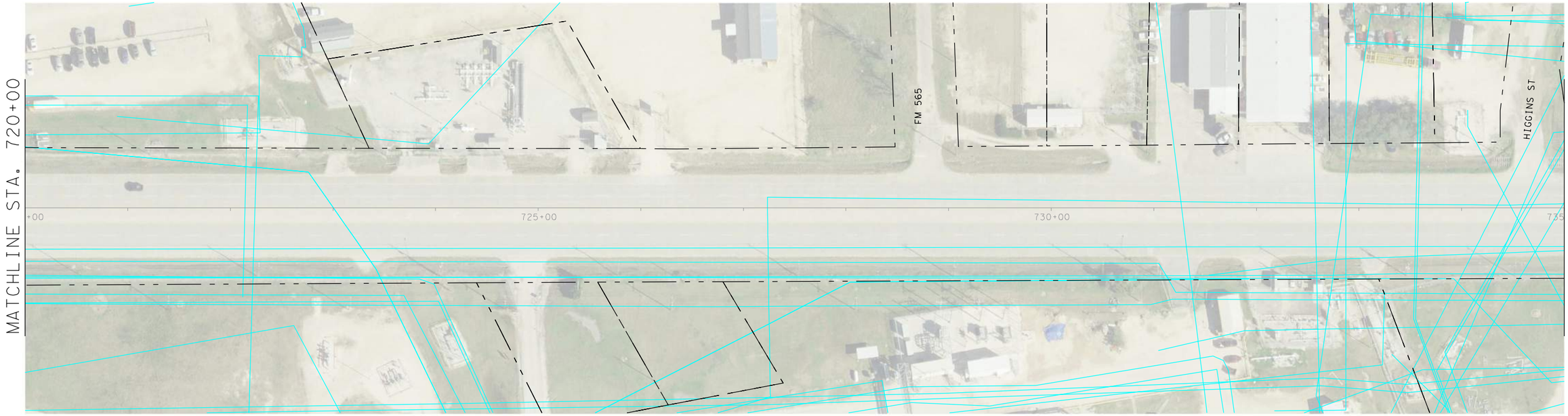
LEGEND
AM (PM)



KEY MAP



DATE: 3/26/2018

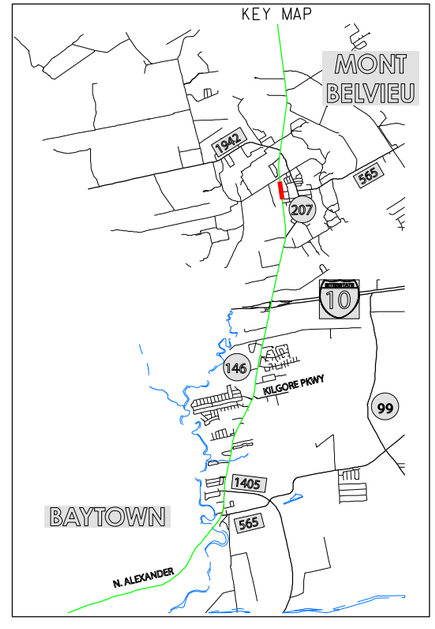


0 25 50 75 100

APPROX. SCALE: 1"=100'

LEGEND

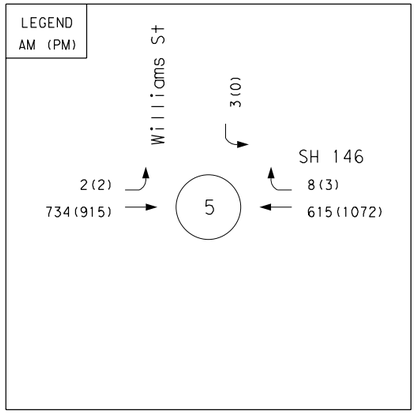
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION

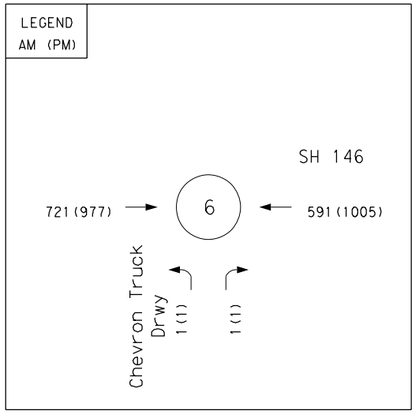


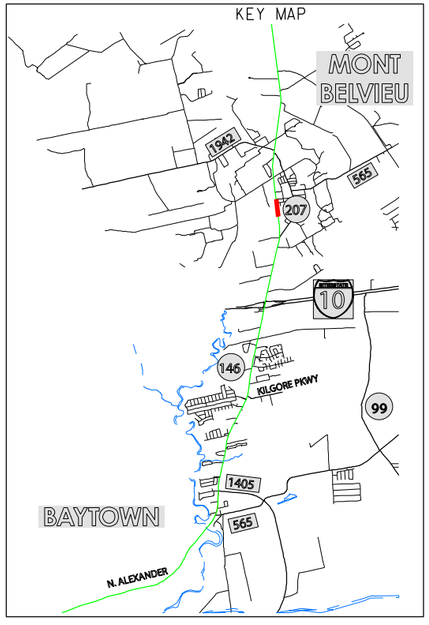
DATE: 3/26/2018

0 25 50 75 100
APPROX. SCALE: 1"=100'

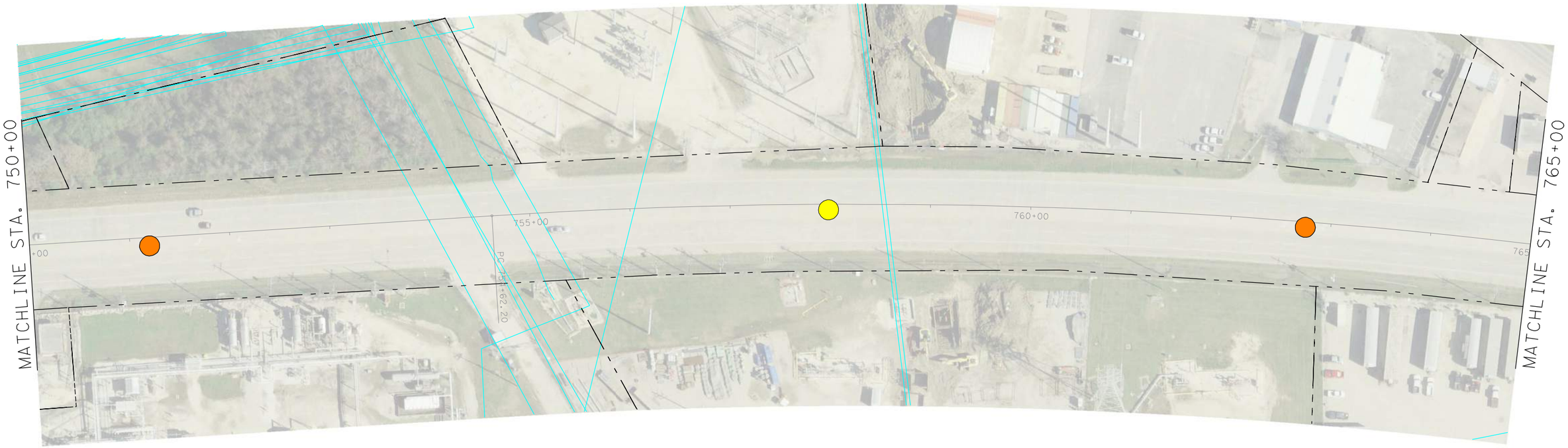
LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION







DATE: 3/26/2018

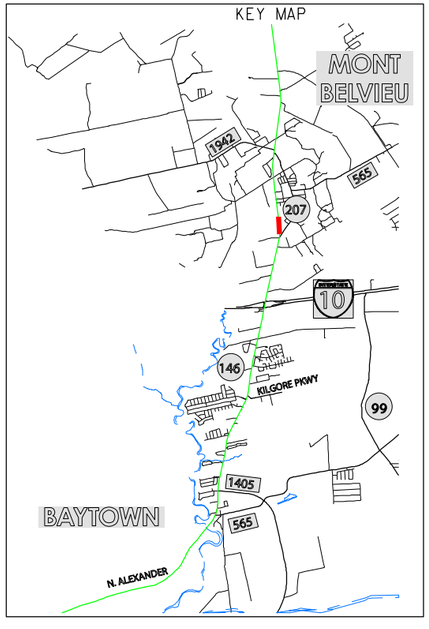


0 25 50 75 100

APPROX. SCALE: 1"=100'

LEGEND

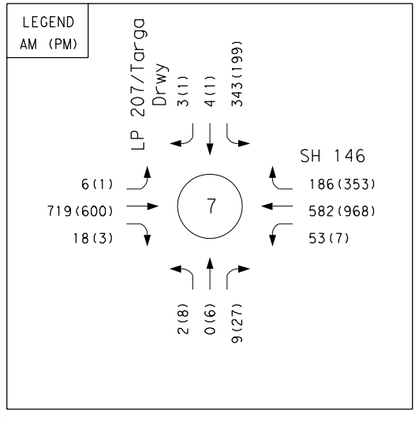
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION

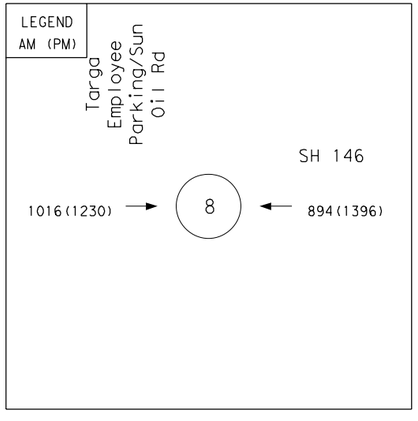


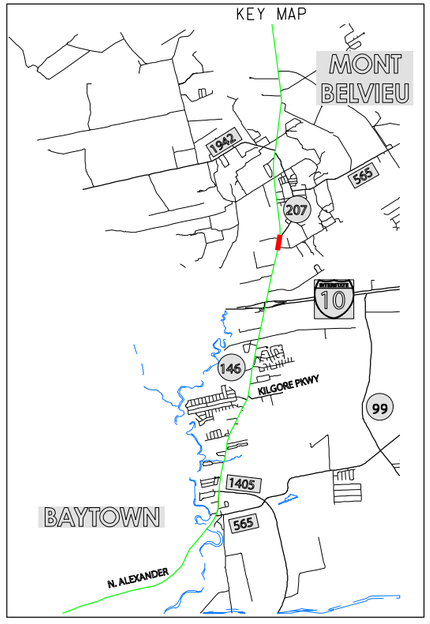
DATE: 3/26/2018

0 25 50 75 100
APPROX. SCALE: 1"=100'

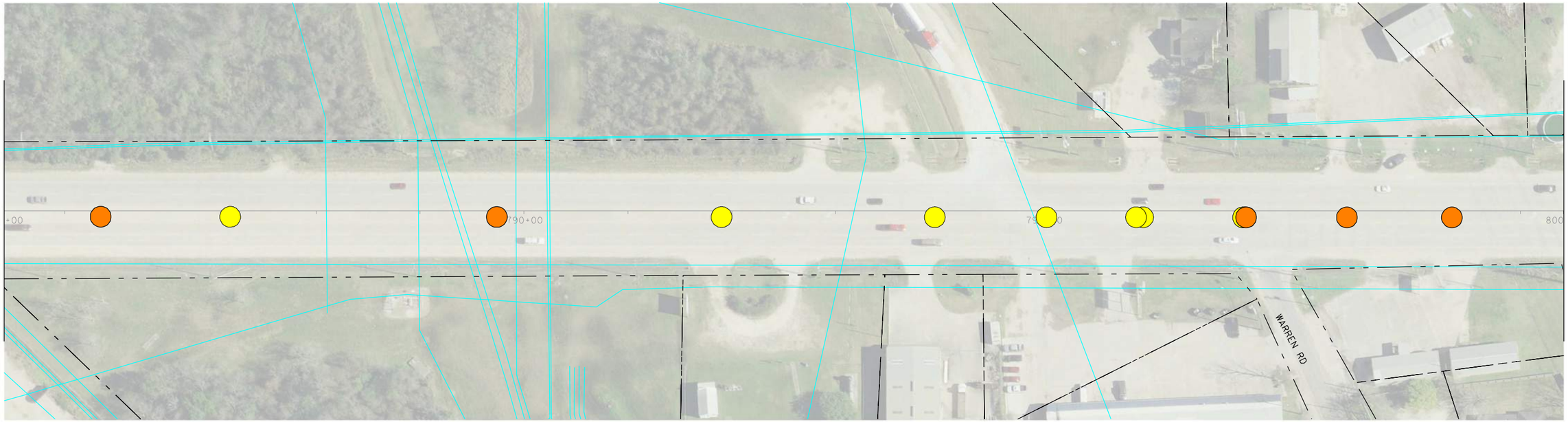
LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION





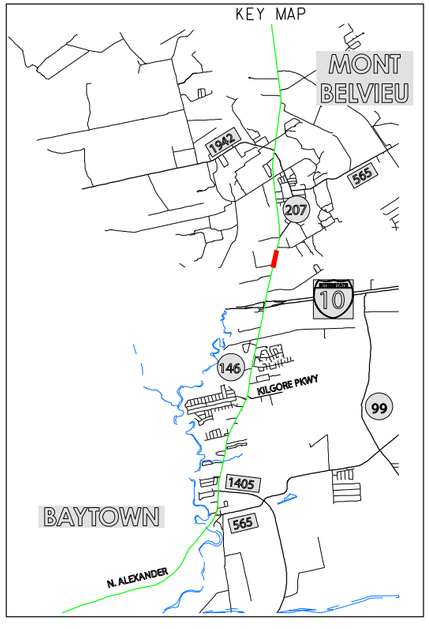


DATE: 3/26/2018

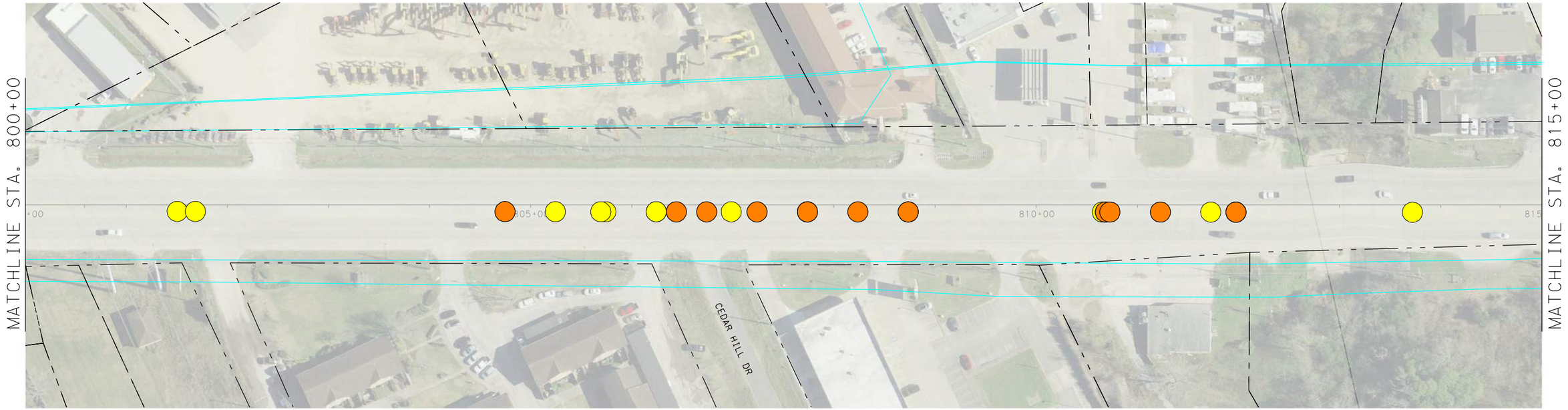


0 25 50 75 100
APPROX. SCALE: 1"=100'

LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION



DATE: 3/26/2018

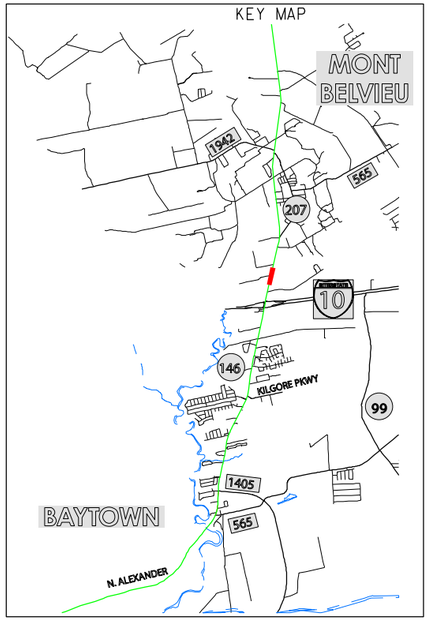


0 25 50 75 100

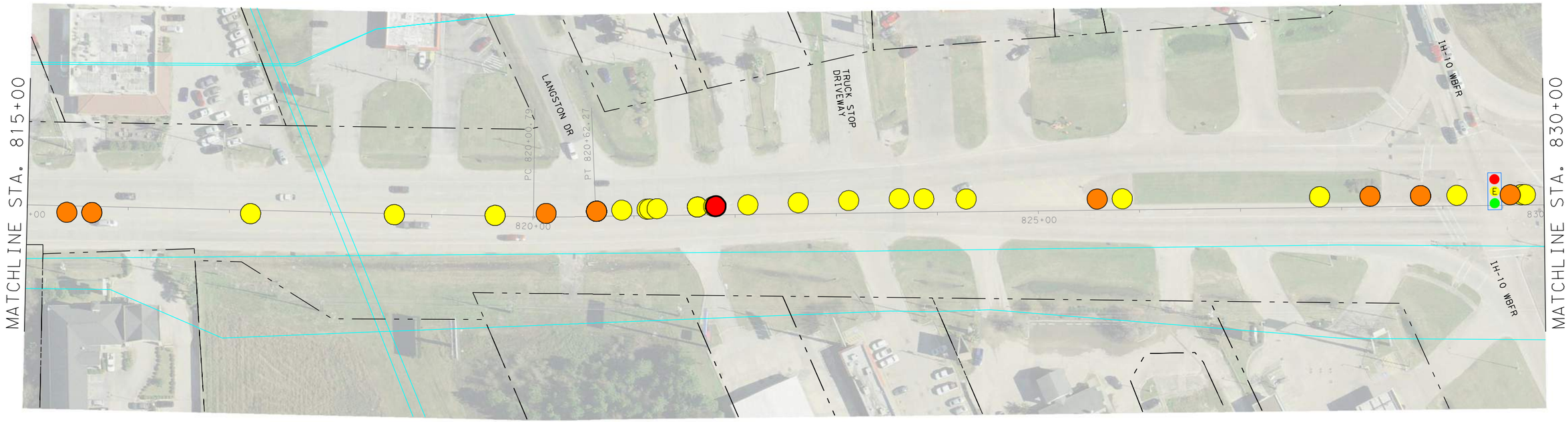
APPROX. SCALE: 1"=100'

LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION

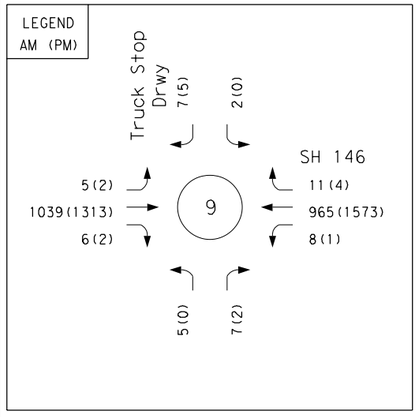


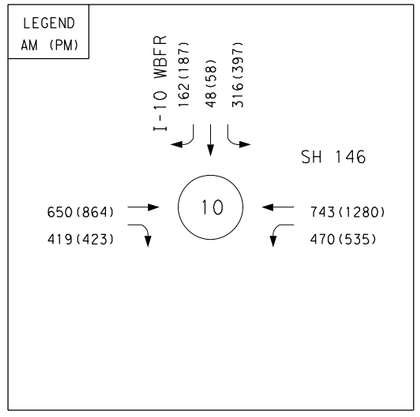
DATE: 3/26/2018

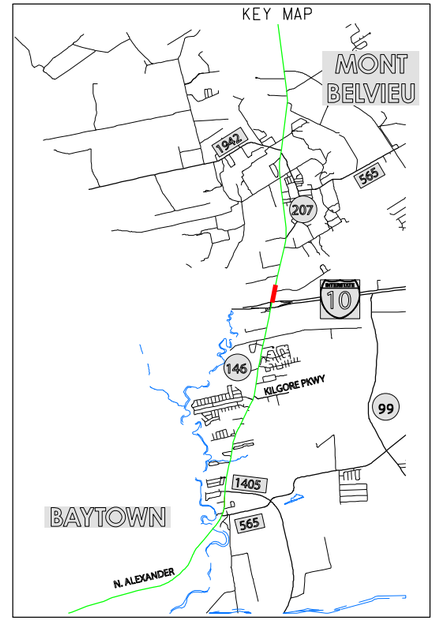


0 25 50 75 100
APPROX. SCALE: 1"=100'

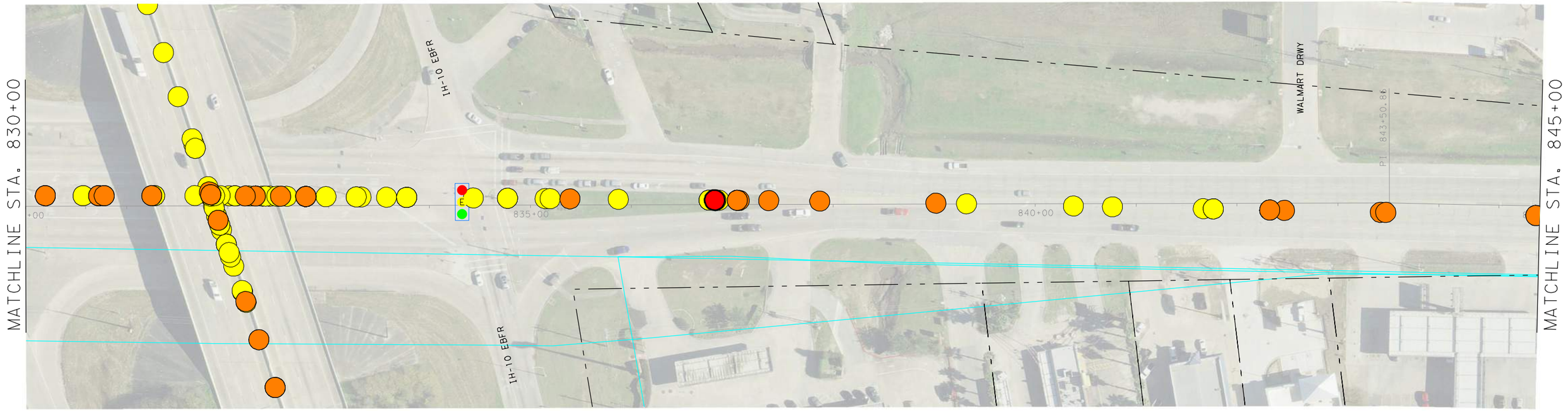
LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION





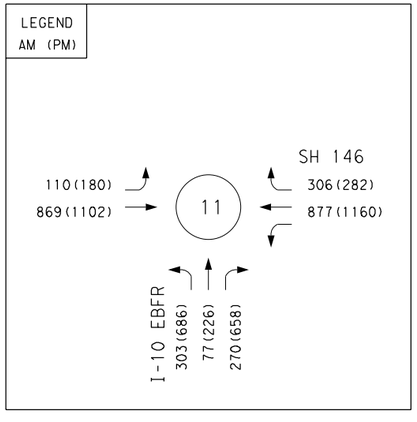


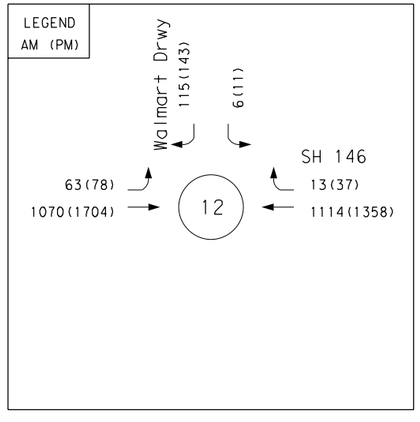
DATE: 3/26/2018

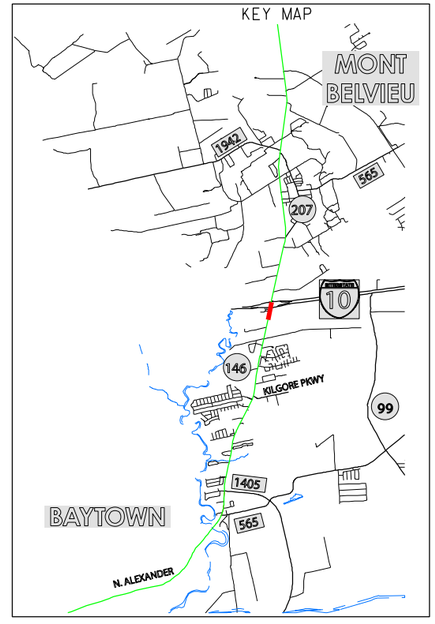


0 25 50 75 100
APPROX. SCALE: 1"=100'

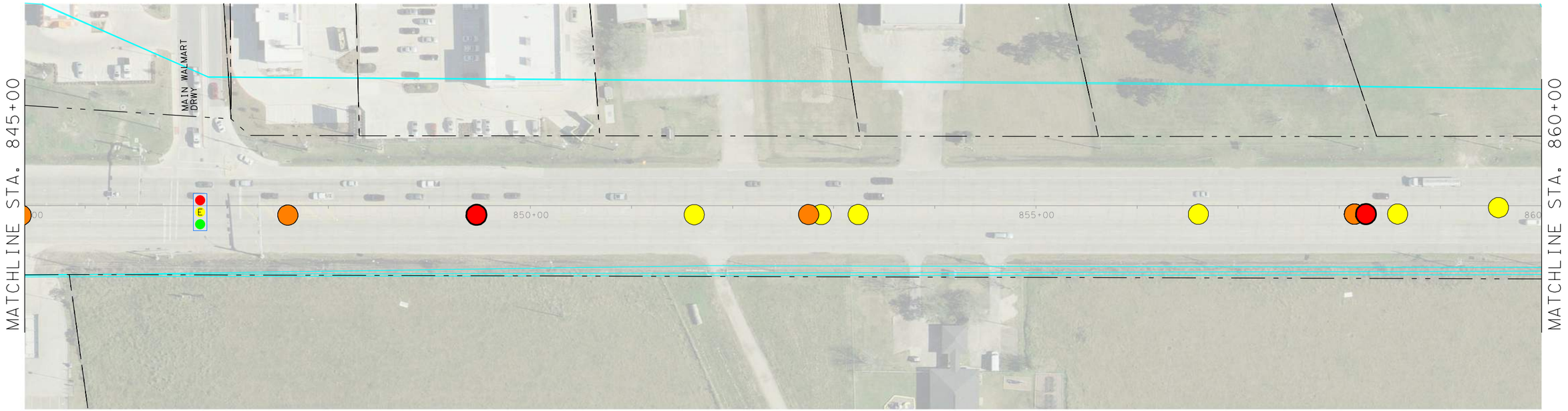
LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION







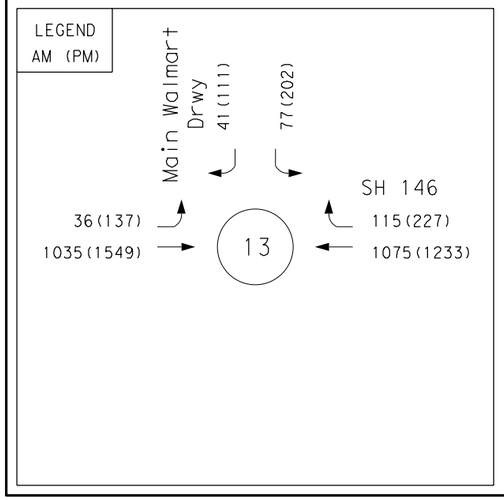
DATE: 3/26/2018

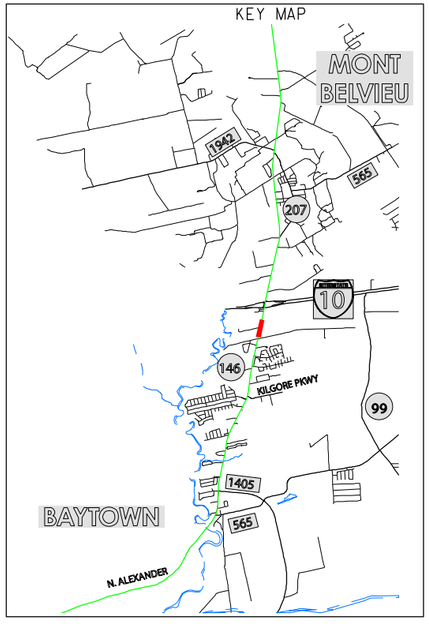


0 25 50 75 100

APPROX. SCALE: 1"=100'

LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION



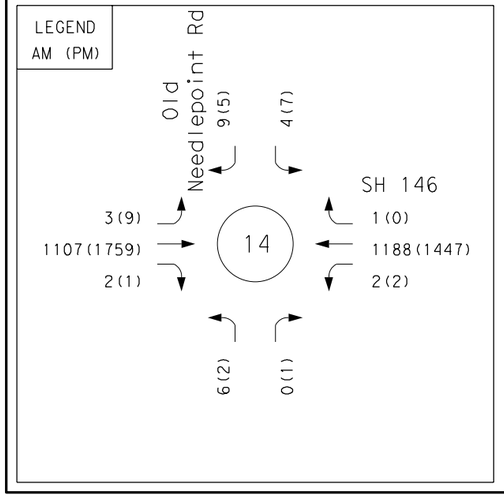


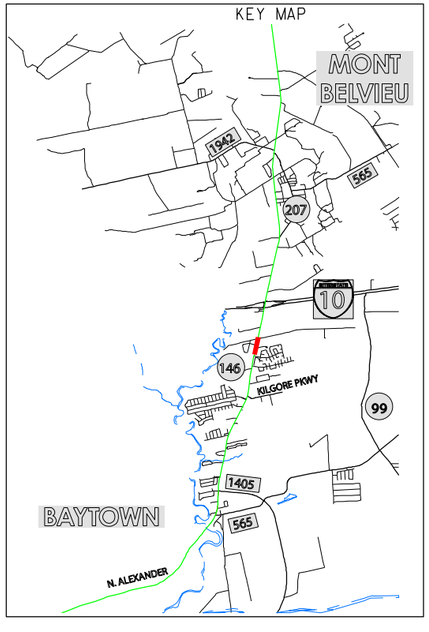
DATE: 3/26/2018

0 25 50 75 100

APPROX. SCALE: 1"=100'

LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION





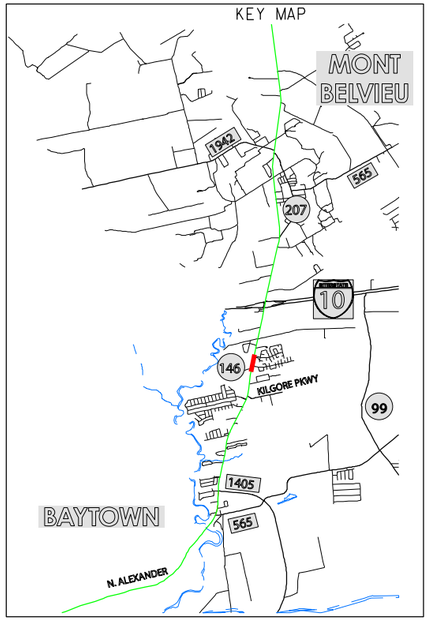
DATE: 3/26/2018

0 25 50 75 100

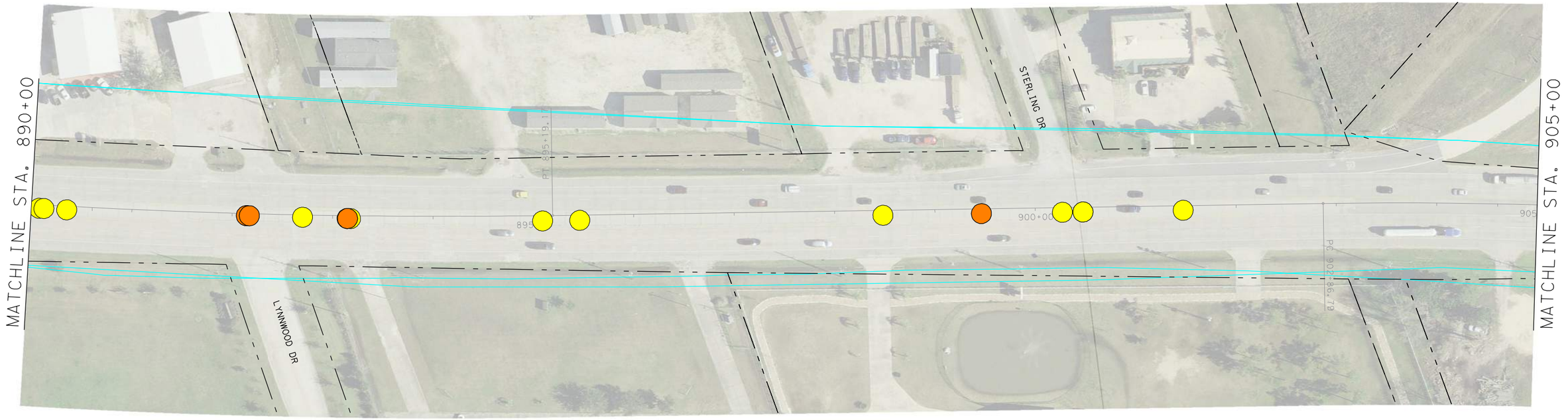
APPROX. SCALE: 1"=100'

LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION



DATE: 3/26/2018

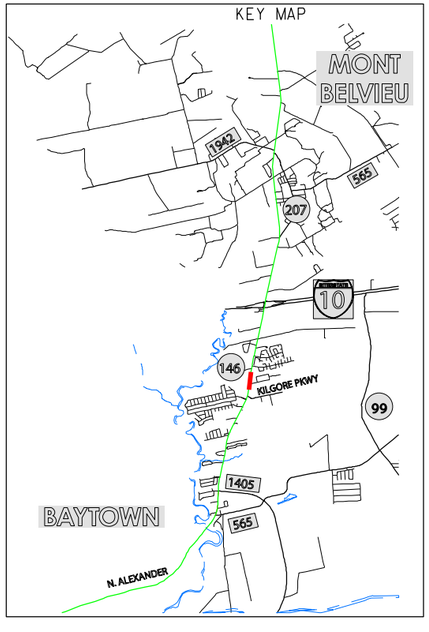


0 25 50 75 100

APPROX. SCALE: 1"=100'

LEGEND

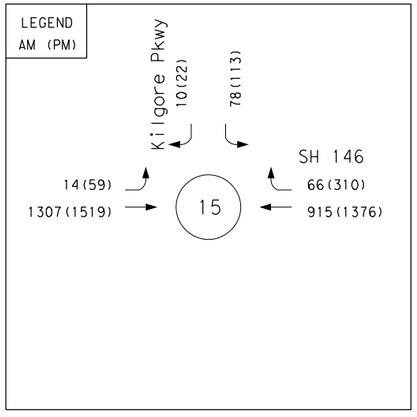
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION

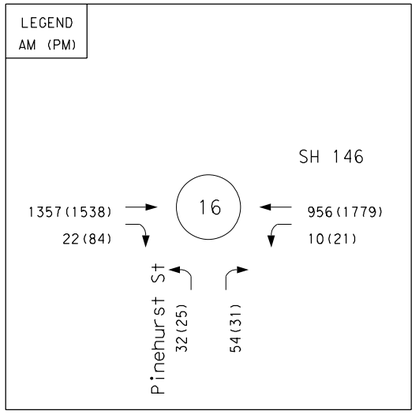


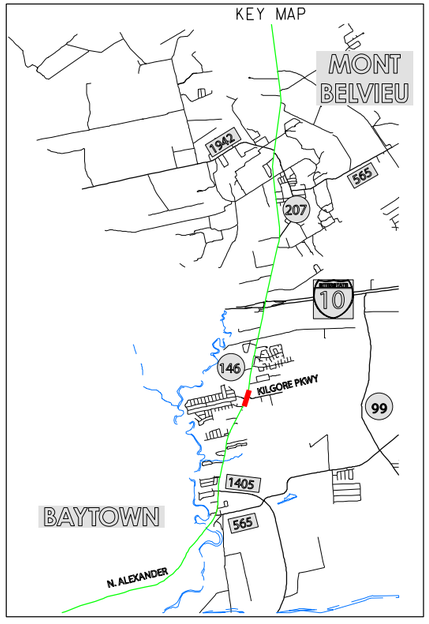
DATE: 3/26/2018

0 25 50 75 100
APPROX. SCALE: 1"=100'

LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION







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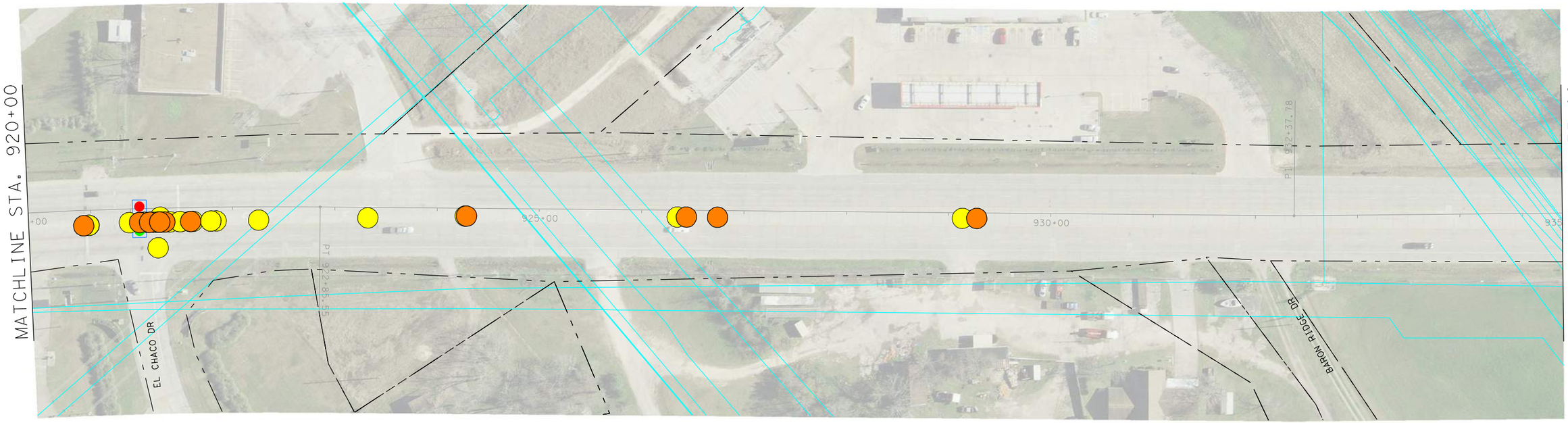

0 25 50 75 100
APPROX. SCALE: 1"=100'

LEGEND
- EXISTING RIGHT-OF-WAY
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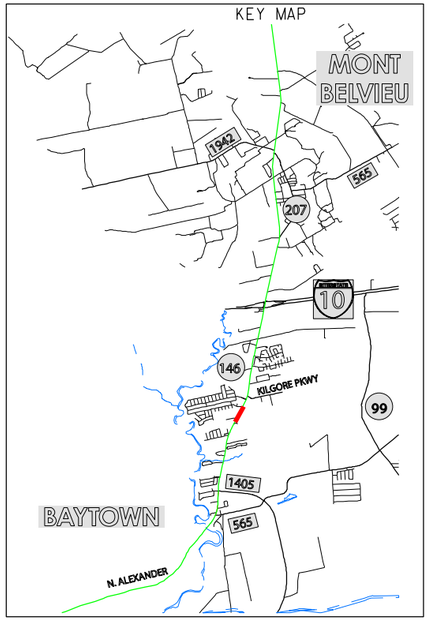

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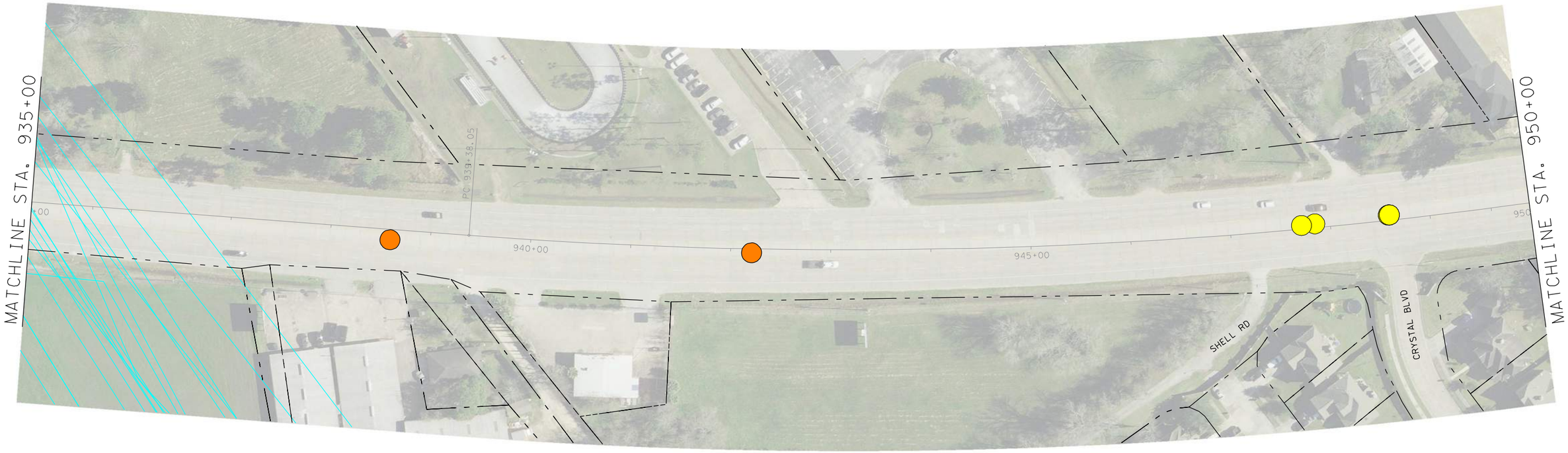

0 25 50 75 100
APPROX. SCALE: 1"=100'

LEGEND
- EXISTING RIGHT-OF-WAY
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- EXISTING TRAFFIC SIGNAL
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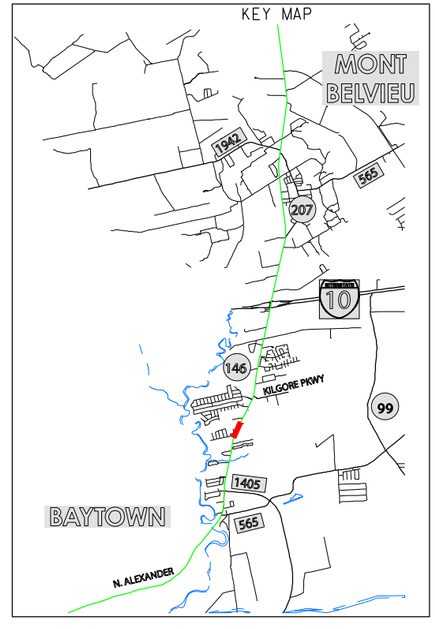


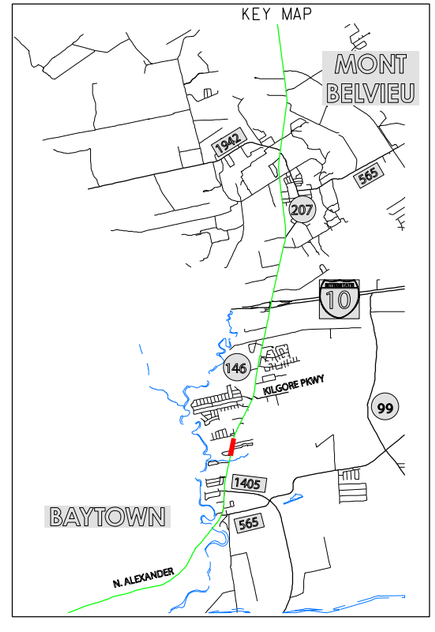
DATE: 3/26/2018

0 25 50 75 100

APPROX. SCALE: 1"=100'

LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION



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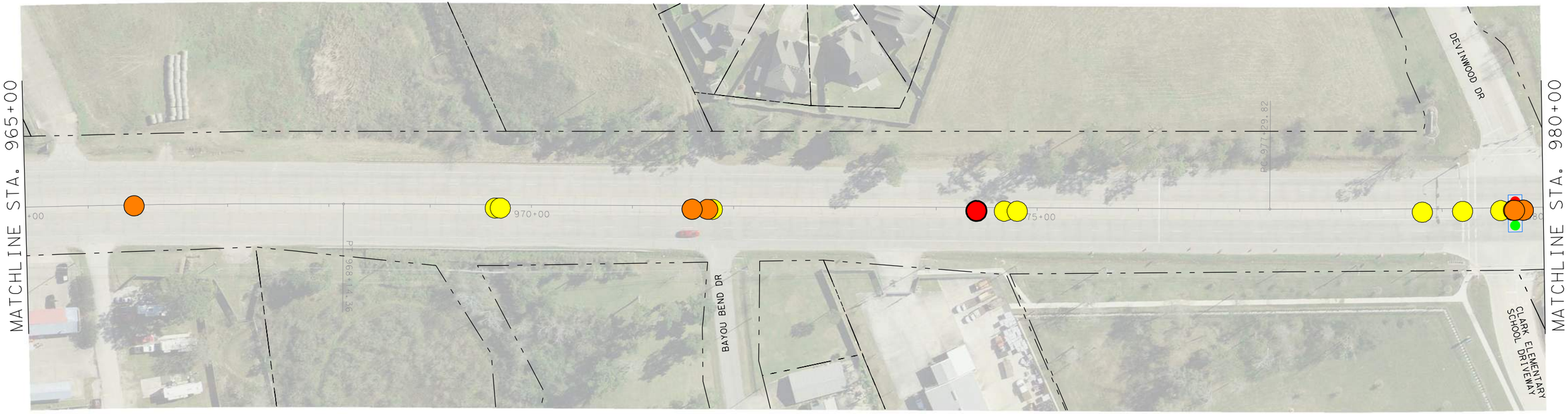
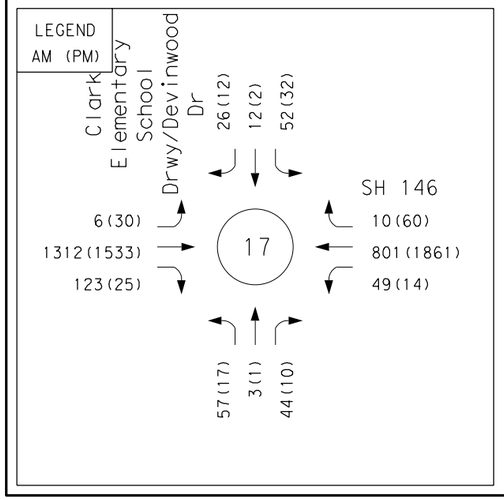
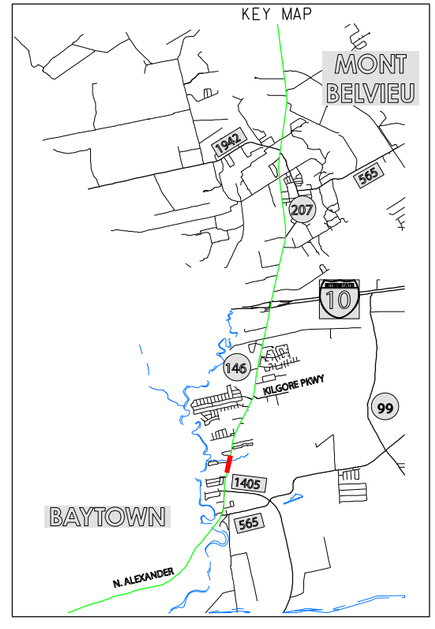


0 25 50 75 100

APPROX. SCALE: 1"=100'

LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION





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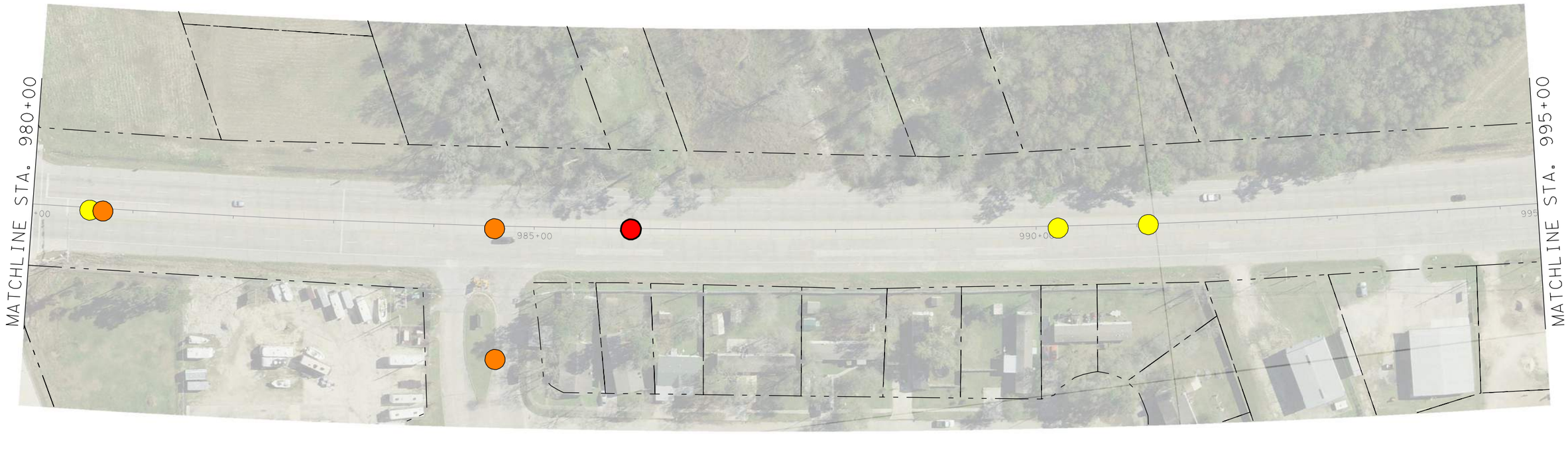
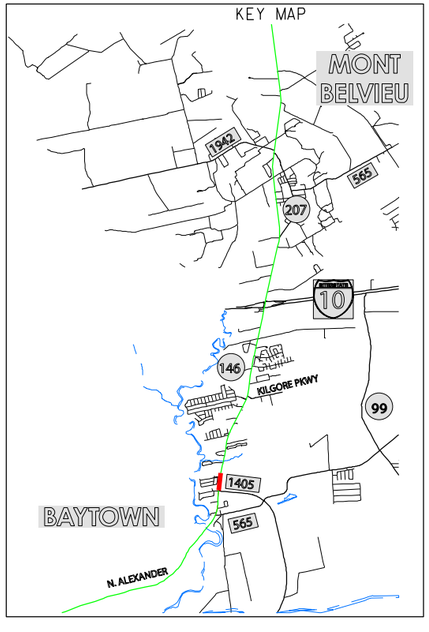


0 25 50 75 100

APPROX. SCALE: 1"=100'

LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION



DATE: 3/26/2018

0 25 50 75 100

APPROX. SCALE: 1"=100'

LEGEND
- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
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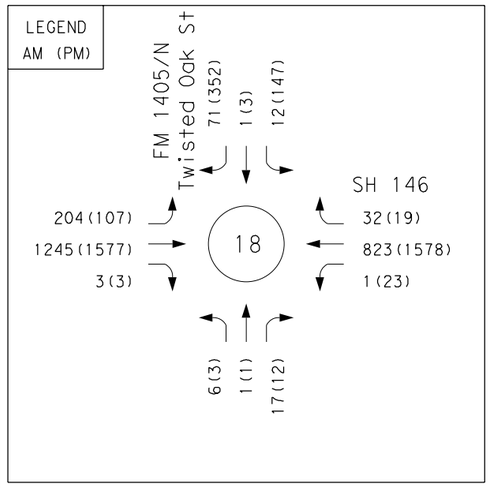

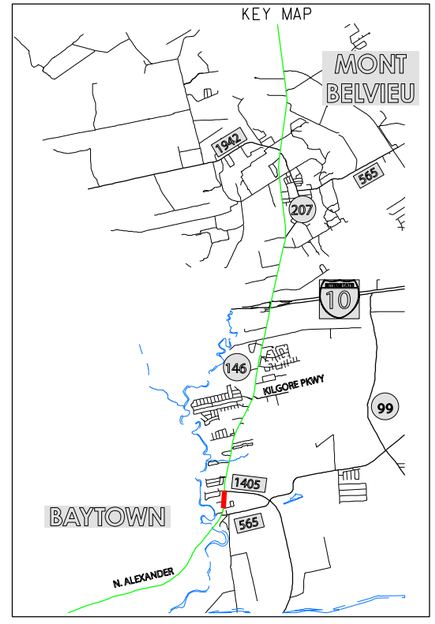

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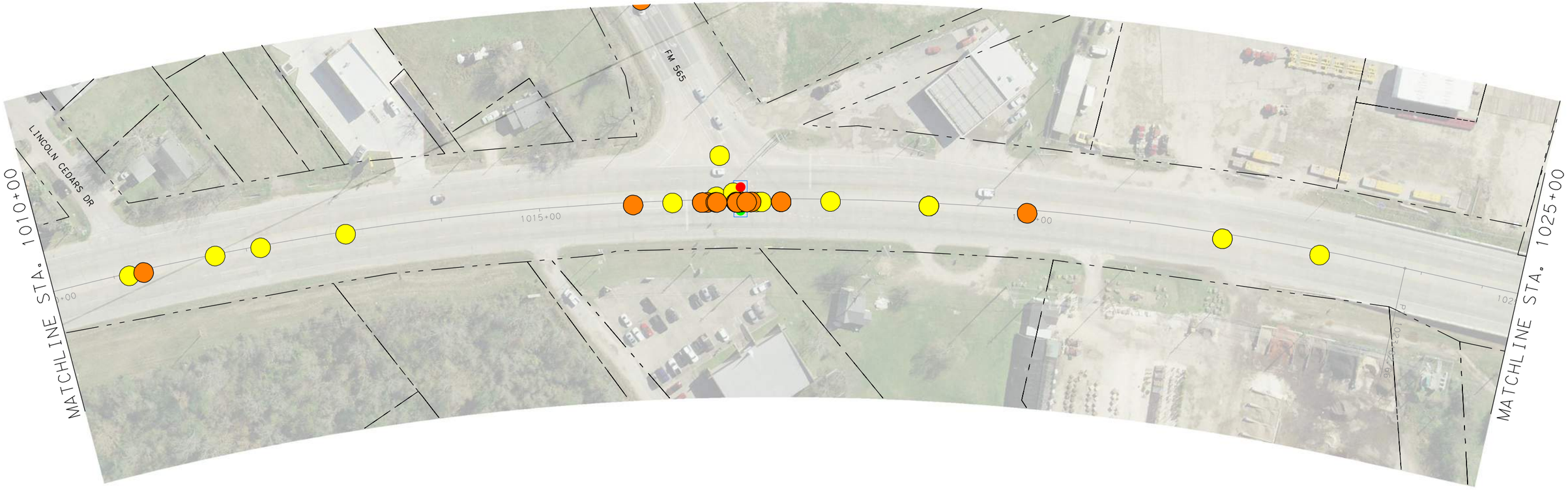
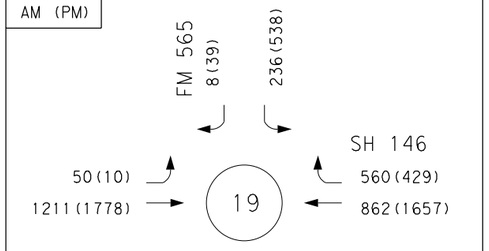


0 25 50 75 100

APPROX. SCALE: 1"=100'

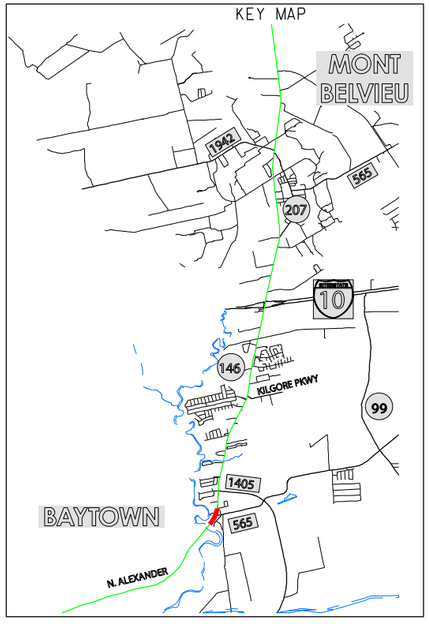
LEGEND
AM (PM)



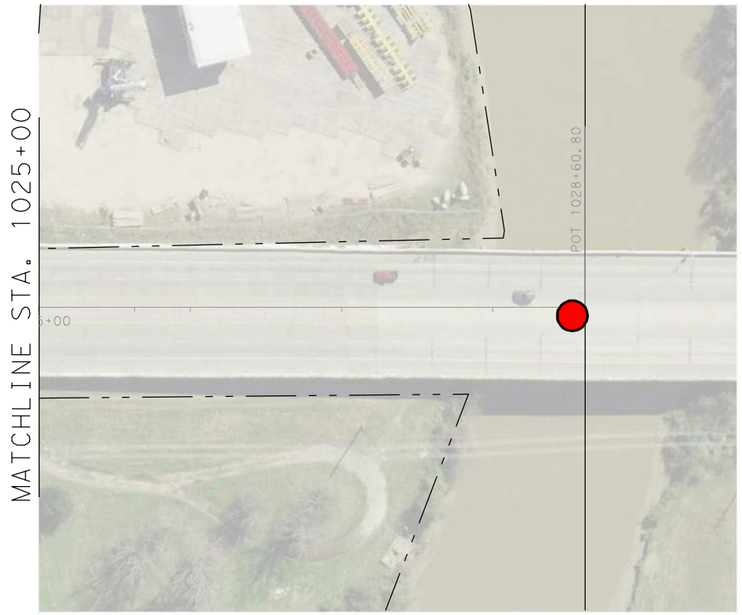
LEGEND

- EXISTING RIGHT-OF-WAY
- EXISTING PIPELINE
- EXISTING TRAFFIC SIGNAL
- FATAL CRASH LOCATION
- INJURY CRASH LOCATION
- PROPERTY-ONLY CRASH LOCATION

KEY MAP



DATE: 3/26/2018



0 25 50 75 100
APPROX. SCALE: 1"=100'

LEGEND
- EXISTING RIGHT-OF-WAY
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- FATAL CRASH LOCATION
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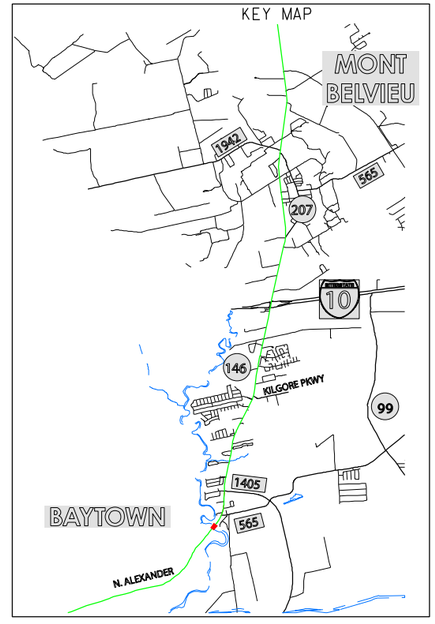
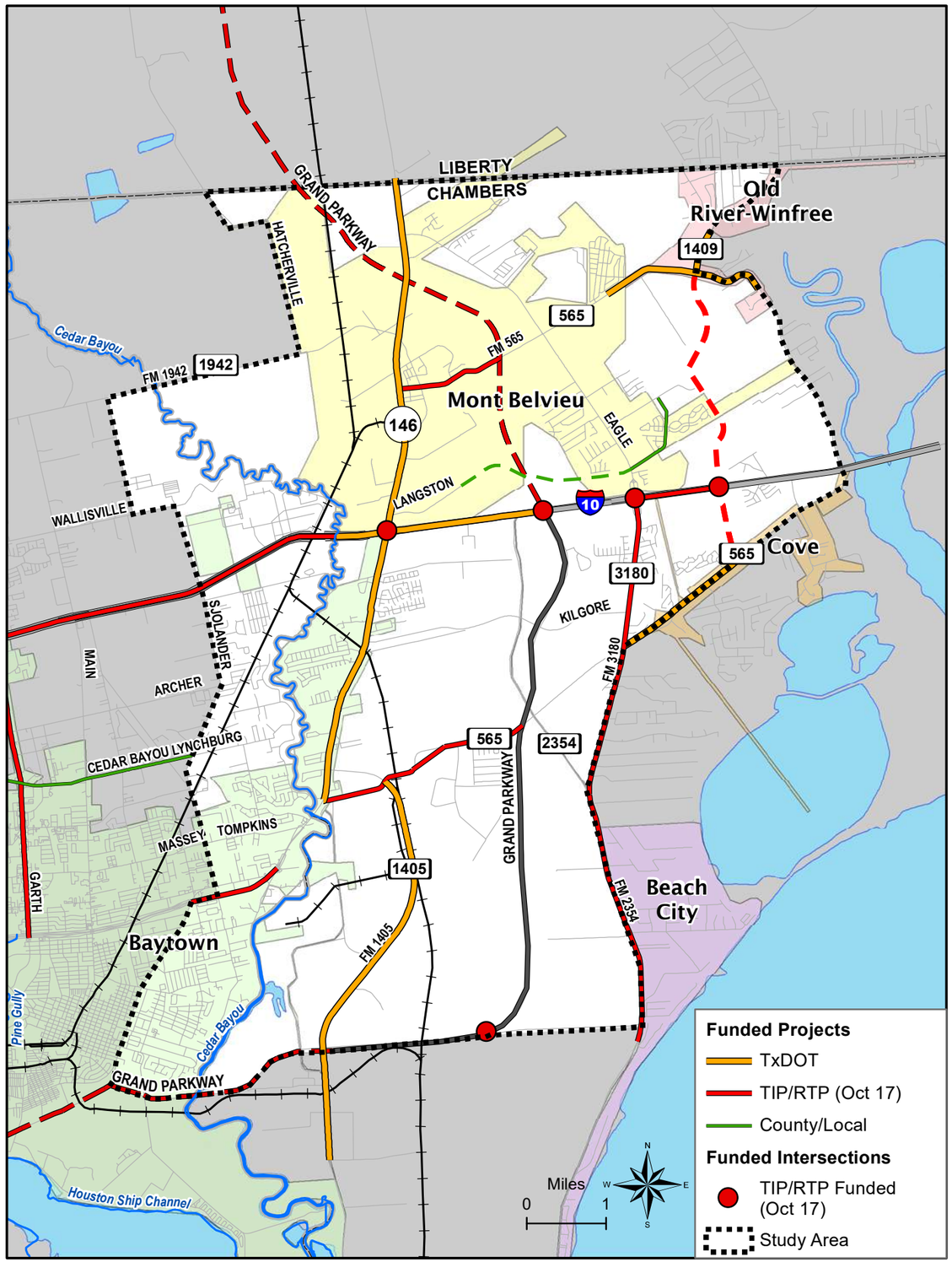


4. PREVIOUS PLANS

Planned Projects


LIBERTY
CHAMBERS
Old
River-Winfree
GRAND PARKWAY
HATCHERVILLE
1409
565
Cedar Bayou
FM 1942
1942
FM 565
Mont Belvieu
146
EAGLE
LANGSTON
10
WALLISVILLE
565
Cove
3180
KILGORE
SJOLANDER
MAIN
ARCHER
FM 3180
CEDAR BAYOU LYNCHBURG
565
2354
GRAND PARKWAY
MASSEY TOMPKINS
1405
FM 2354
Beach
City
GARTH
Baytown
FM 1405
Pine Gully
Cedar Bayou
GRAND PARKWAY
Houston Ship Channel
Miles
0
1
N
W
E
S
Funded Projects
TxDOT
TIP/RTP (Oct 17)
County/Local
Funded Intersections
TIP/RTP Funded (Oct 17)
Study Area

Index	Intersection	Planned Improvement
1	FM 565 @ FM 3180	Widening Of FM 3180
2	SH 99 @ SH 146	SH 99 @ SH 146 Interchange
3	SH 146 @ Ferry Rd	SH 146 Overpass
4	SH 146 @ N. Alexander Dr	SH 146 Overpass
5	N Alexander Dr (SH 146B) @ SH 146	SH 146 Overpass
6	FM 565 @ Eagle Drive	Widening Of FM 565
7	SH 99 @ I-10	SH 99 @ I-10 Interchange
8	Eagle Drive @ I-10	Eagle Drive @ I-10 Interchange
9	FM 565 @ FM 1405	Widening Of FM 565
10	FM 565 @ Ameriport Pkwy	Widening Of FM 566
11	FM 565 @ FM 3180	Widening Of FM 3180
12	SH 146B @ SH 99	SH 146B @ SH 99 Interchange
13	FM 1405 @ SH 99	SH 99 Main Lane Construction
14	SH 146 @ FM 565	FM 565 Extension

LT: FM 565 @ FM 3180

1

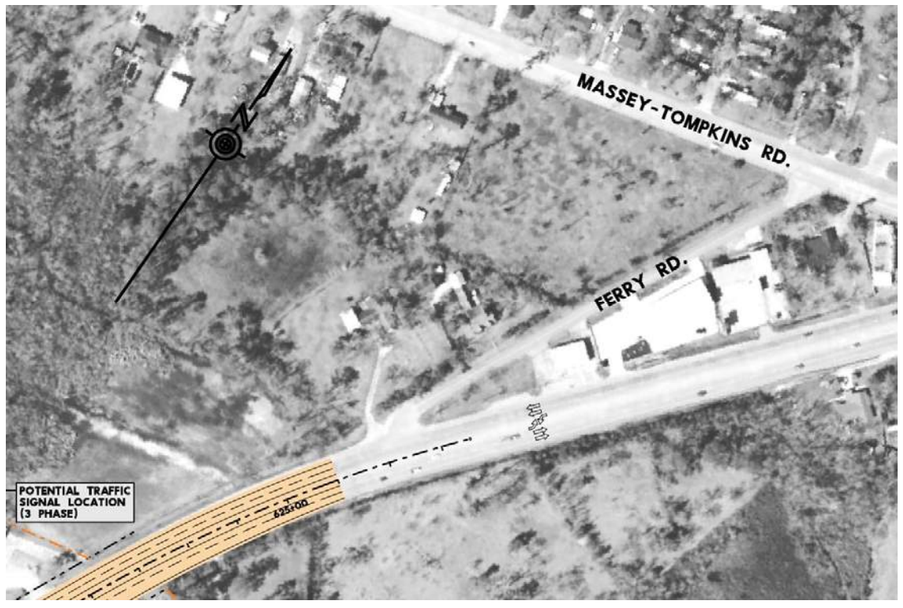
Widening Of FM 3180

LT: SH 99 @ SH 146

2

SH 99 @ SH 146 Interchange

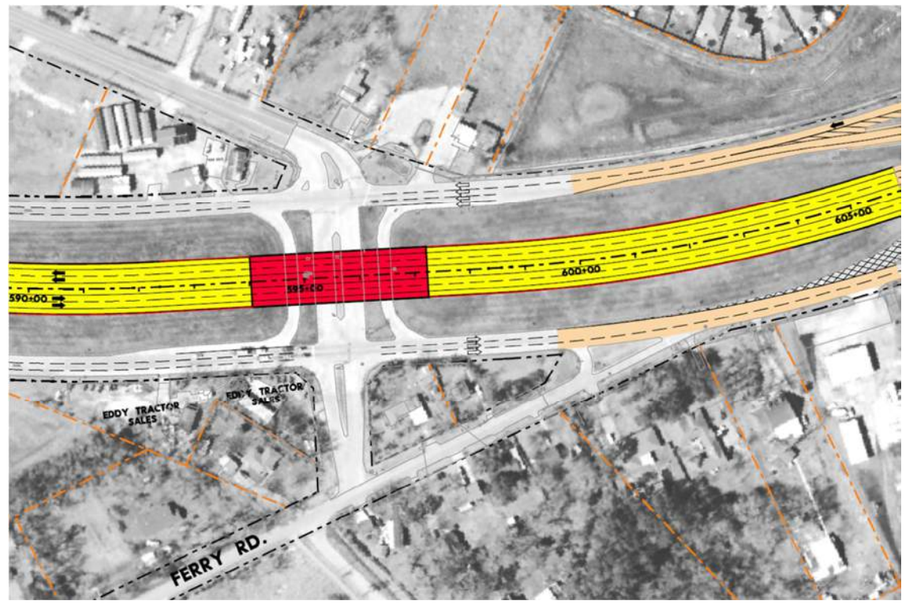
22: SH 146 @ Ferry Rd



3

SH 146 Overpass

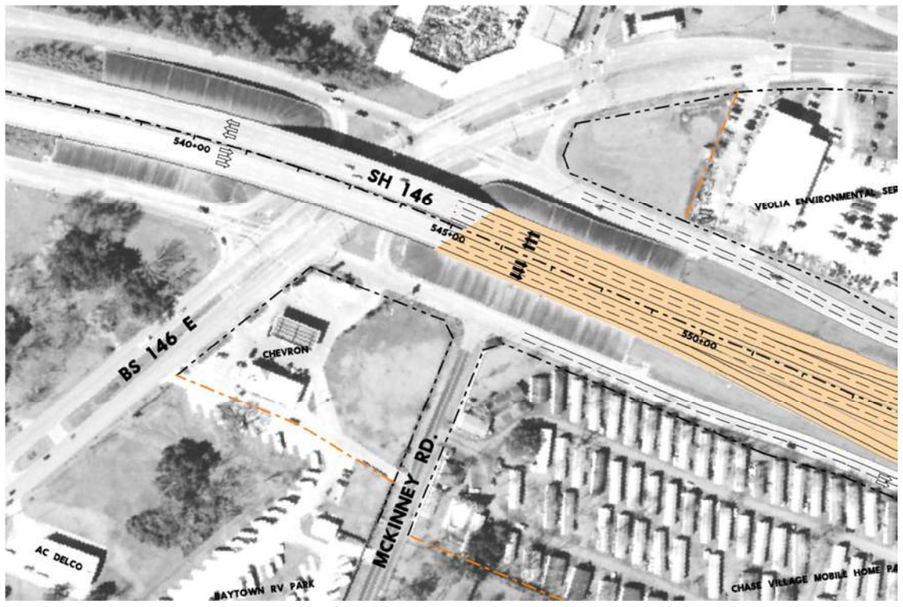
23,24: SH 146 @ N. Alexander Dr



4

SH 146 Overpass

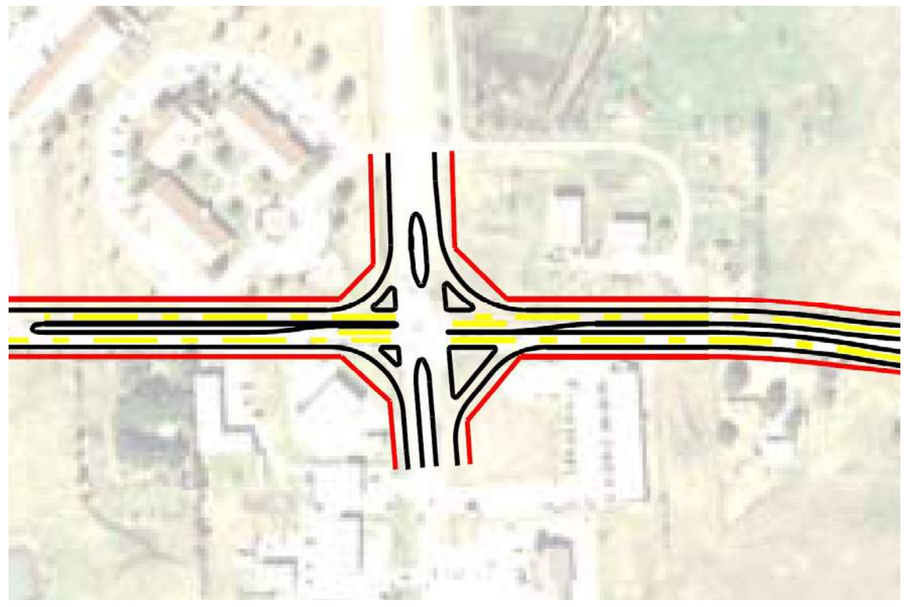
25,26: N Alexander Dr (SH 146B) @ SH 146



5

SH 146 Overpass

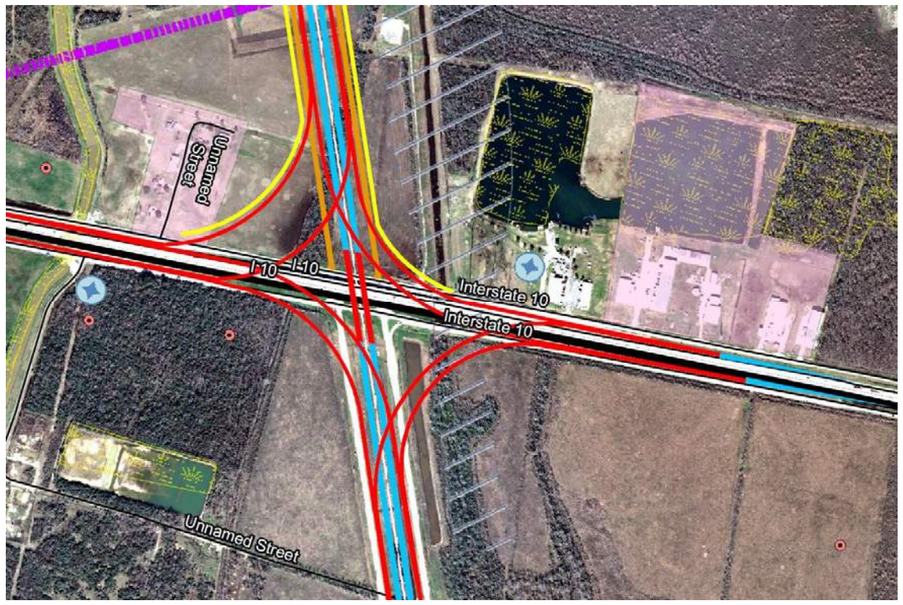
103: FM 565 @ Eagle Drive



6

Widening Of FM 565

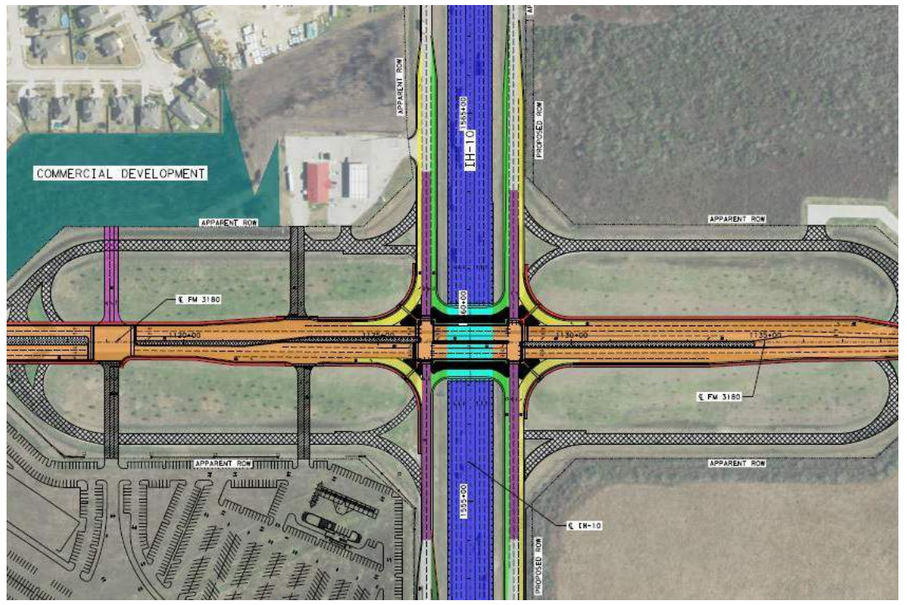
106-109: SH 99 @ I-10



7

SH 99 @ I-10 Interchange

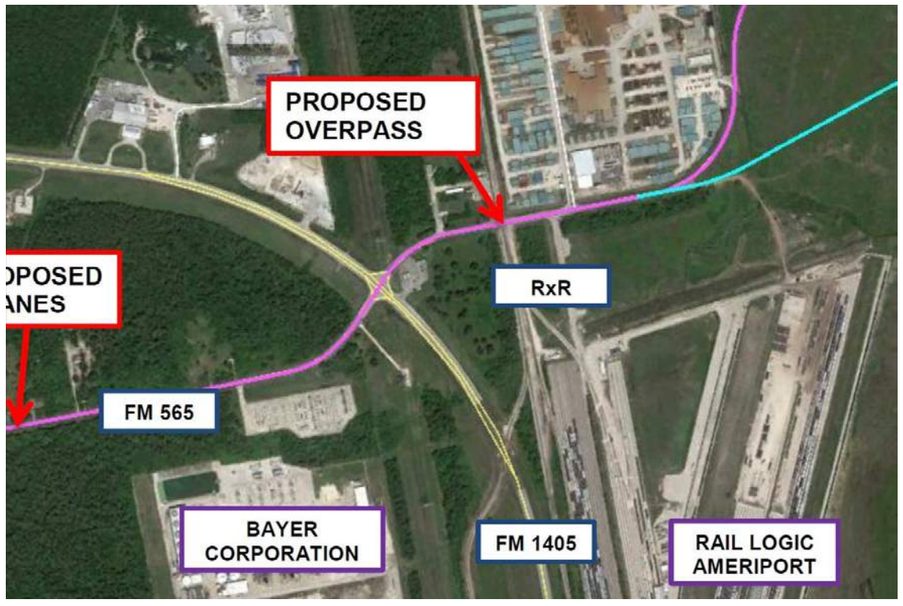
110: Eagle Drive @ I-10



8

Eagle Drive @ I-10 Interchange

114: FM 565 @ FM 1405



9

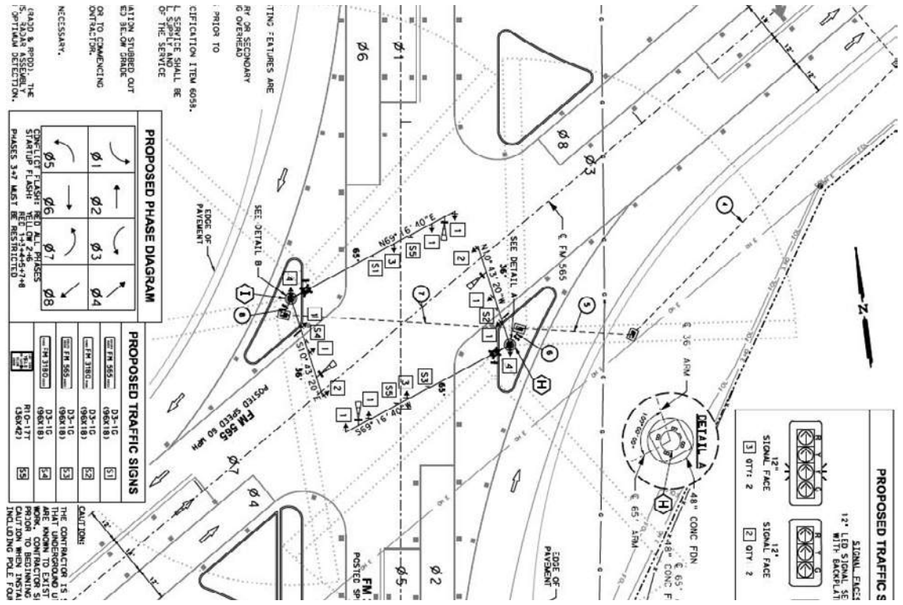
Widening Of FM 565

115: FM 565 @ Ameriport Pkwy

10

Widening Of FM 566

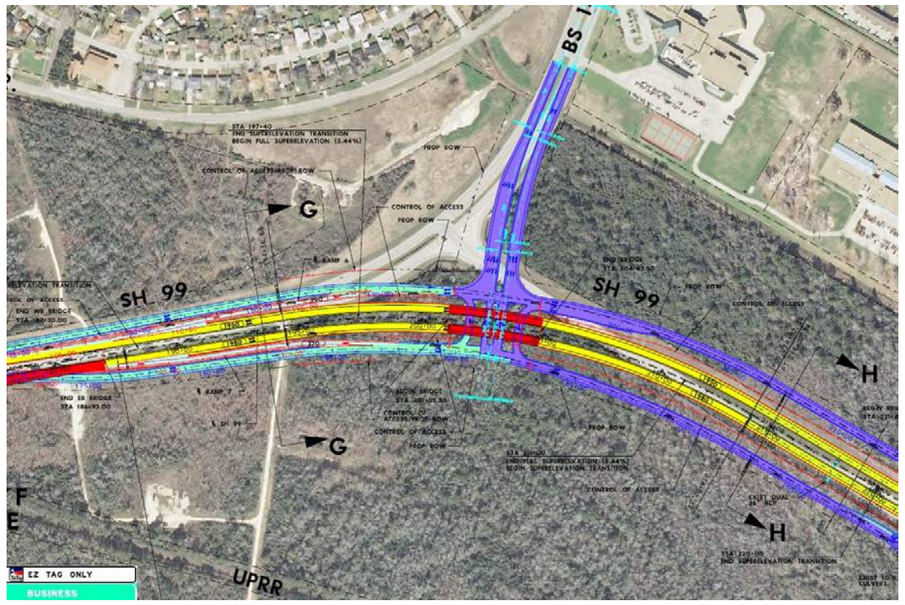
119: FM 565 @ FM 3180



Widening Of FM 3180

11

120: SH 146B @ SH 99



SH 146B @ SH 99 Interchange

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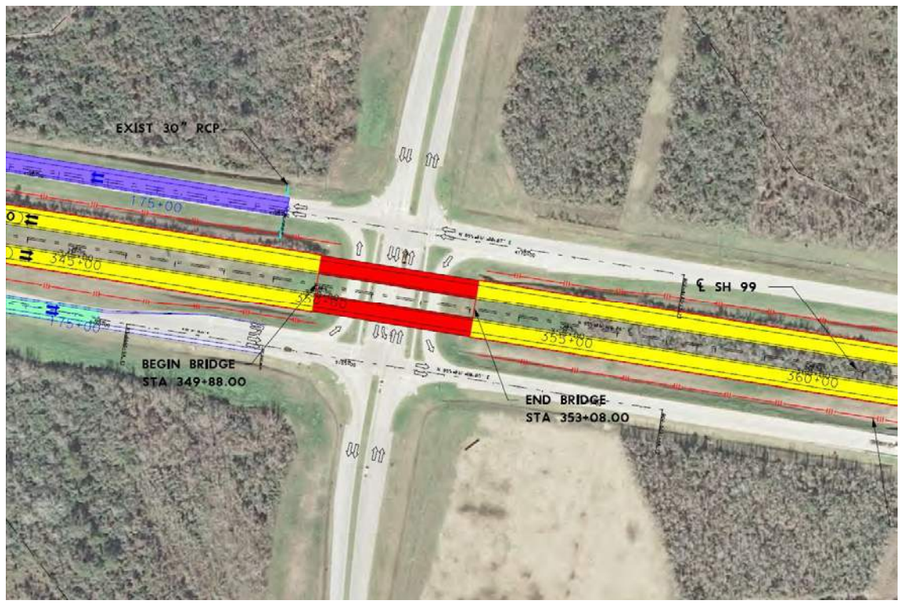
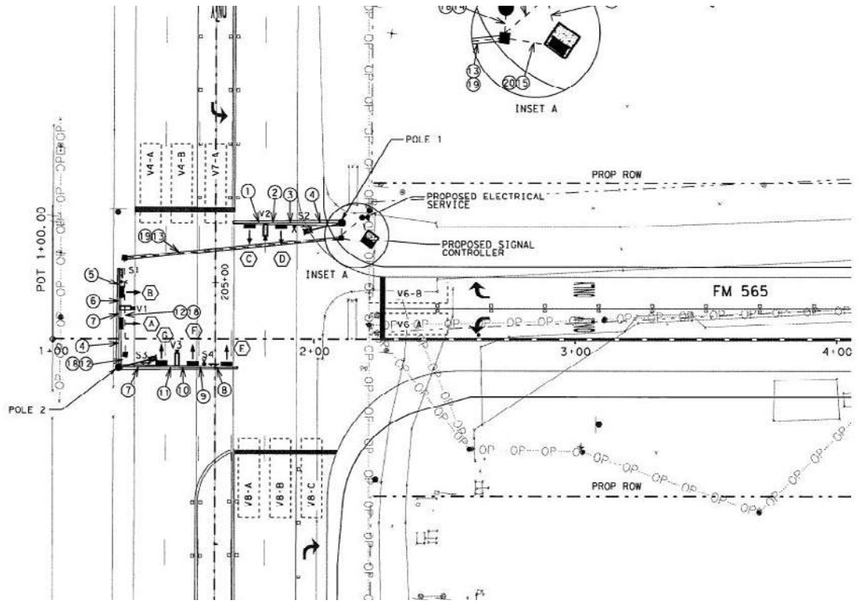
121: FM 1405 @ SH 99



SH 99 Main Lane Construction

13

124: SH 146 @ FM 565



FM 565 Extension

14

Project ID	Status	Highway	County	From Limit	To Limit	Construction Cost/Estimate	Description	Project Length
038902044	Construction Scheduled	SH 146	Chambers	LIBERTY CO LINE	HARRIS CO LINE	$ 584,096.00	Safety Treat Fixed Objects	8.212 (mi)
038902047	Under Development	SH 146	Chambers	AT SMITHS GULLY	(STR 200360038902027)	$ 76,840.00	Upgrade Bridge And Approach Railing	0.017 (mi)
038902048	Under Development	SH 146	Chambers	AT MCGAR GULLY	(STR 200360038902028)	$ 44,948.00	Upgrade Bridge And Approach Railing	0.070 (mi)
038902049	Under Development	SH 146	Chambers	AT THE IRRIGATION CANAL	(STR 200360038902031)	$ 56,372.00	Upgrade Bridge And Approach Railing	0.009 (mi)
038902051	Construction Scheduled	SH 146	Chambers	@IH-10	.	$ 223,069.00	Improve Traffic Signals	0.200 (mi)
038902052	Finalizing for Construction	SH 146	Chambers	IH-10	FM 1405	$ 2,778,020.00	Install Raised Median	3.114 (mi)
038902053	Finalizing for Construction	SH 146	Chambers	AT FM 565	.	$ 137,157.00	Improve Traffic Signals	0.200 (mi)
050802111	Construction Scheduled	IH 10	Chambers	HARRIS COUNTY	SH 61	$ 131,475.00	Texturize Shoulders (milleD-In Rumble Strips)	15.790 (mi)
050802120	Finalizing for Construction	IH 10	Chambers	AT FM 3180	.	$ 27,584,000.00	Construct Overpass	1.000 (mi)
050802121	Finalizing for Construction	IH 10	Chambers	SH 146	0.25 MI. E. OF SH 146 (WB FRONTAGE	$ 288,000.00	Extend Wb Turn Lane	0.114 (mi)
076203018	Finalizing for Construction	FM 1409	Chambers	FM 565 IN OLD RIVER-WINFREE, SOUTH	FM 565 W OF COVE	$ 20,132,602.00	Construct A 2 Lane Highway On A New Location	4.550 (mi)
102401042	Finalizing for Construction	FM 565	Chambers	0.305 MI W OF FM 2354	0.018 MI E OF FM 1405	$ 5,790,000.00	Reconstruct And Realign Existing Roadway	1.864 (mi)
102401072	Finalizing for Construction	FM 565	Chambers	OLD RIVER DRIVE	BB LANE	$ 2,363,880.00	Construct Paved Shoulders, Install Continueous Turn Lane	2.097 (mi)
102401074	Finalizing for Construction	FM 565	Chambers	1.4 MILES EAST OF FM 3180	FM 3180	$ 1,109,179.00	Widen Paved Surface Width, Install Continuous Turn Lane	1.400 (mi)
102401076	Finalizing for Construction	FM 565	Chambers	SL 207	FM 3360	$ 599,886.00	Provide Additional Paved Surface Width. Install Milled Edgeline And Centerline Rumble Strips	1.711 (mi)
102401077	Under Development	FM 565	Chambers	SH 99	SH 146	$ 39,121,000.00	Widen To 4 Lanes With Cltl And Overpass At Up rr	2.911 (mi)
102402044	Construction Scheduled	FM 1405	Chambers	FM 565, SOUTH	1.28 MILES SOUTH OF SH 99	$ 10,486,302.00	Rehabilitate Existing Roadway	5.116 (mi)
181202022	Construction Scheduled	FM 1942	Chambers	HARRIS CO/L,EAST	SH 146	$ 141,707.00	Seal Coat	3.257 (mi)
224202022	Finalizing for Construction	FM 2354	Chambers	FM 3180	0.25 MILES SOUTH OF FISHER ROAD	$ 2,397,000.00	Add Center Left Turn Lane And Widen Shoulders, Add Nb Left Turn Lane At Fisher Road	3.218 (mi)
224202023	Construction Scheduled	FM 2354	Chambers	HLP CANAL	FM 1405	$ 287,872.00	Seal Coat	8.763 (mi)
318702006	Construction Scheduled	SH 99	Chambers	FM 1405 (SEGMENT I-2)	HARRIS C/L	$ 22,325,545.00	Construct Two 2-Ln Frontage Roads	2.057 (mi)
318702010	Under Development	SH 99	Chambers	AT IH 10 EAST	.	$ 76,000,000.00	Construct 4 Dcs (toll) (segment I-2)	0.500 (mi)
318702011	Finalizing for Construction	SH 99	Chambers	HARRIS C/L	FM 1405 (SEGMENT I-2)	$ 40,074,877.00	Construct 4-Lane Tollway & Interchanges	2.060 (mi)
327101011	Construction Scheduled	FM 3180	Chambers	0.52 MILES NORTH OF FM 565, SOUTH	0.60 MILES SOUTH OF FM 565	$ 6,439,874.00	Reconstruct Intersection At Fm 565	1.062 (mi)
327101015	Finalizing for Construction	FM 3180	Chambers	IH-10, SOUTH	0.60 MILES SOUTH OF FM 565	$ 3,815,000.00	Widen To 4 Lanes With Cltl	2.464 (mi)
351010001	Finalizing for Construction	SH 99	Chambers	LIBERTY C/L	IH 10 (E) (SEGMENTI-1)	$ 65,998,418.00	Construct 4-Lane Tollway With Interchanges And Two NoN-Continuous Frontage Roads And Periodic Passing Lanes	4.650 (mi)
351010016	Finalizing for Construction	SH 99	Chambers	0.66 MI N OF FISHER RD	0.62 MI W OF FISHER RD	$ 17,410,000.00	Construct 4 Mainlane Tollway Overpass (toll) (segment I-2)	1.275 (mi)
038913039	Finalizing for Construction	SH 146	Harris	FERRY RD	BS 146E	$ 47,090,744.00	Construct 4 Mainlanes And Grade Separation	1.015 (mi)

Source: TxDOT Project Tracker - Project List

MPOID	CSJ	County	Sponsor	Facility	From	To	Description	Corridor/Program	Total	Fiscal Year (Sep-Aug)
201	0739-01-039	Chambers	TXDOT BEAUMONT DISTRICT	IH 10 E	SH 73, EAST	JEFFERSON C/L	WIDEN EXISTING FOUR LANE TO SIX LANE	IH 10E	$26,549,623	2017
259	3510-10-001	Chambers	TXDOT BEAUMONT DISTRICT	SH 99	LIBERTY C/L	IH 10 E	SEG I-1: CONSTRUCT 4-LANE TOLLWAY WITH INTERCHANGES AND TWO NON-CONTINUOUS 2-LANE FRONTAGE ROADS	GPW	$189,300,000	2017
14248	3187-02-010	Chambers	TXDOT BEAUMONT DISTRICT	SH 99	AT IH 10 E		CONSTRUCT 4 DIRECT CONNECTORS (TOLL)	GPW	$76,000,000	2020
15493	3510-10-016	Chambers	TXDOT BEAUMONT DISTRICT	SH 99	0.66 MI N OF FISHER RD	0.62 MI W OF FISHER RD	SEG I-2: CONSTRUCT 4 LANE TOLLWAY OVERPASS (TOLL)	GPW	$23,500,000	2017
16235	3187-02-011	Chambers	TXDOT BEAUMONT DISTRICT	SH 99	HARRIS C/L	FM 1405	SEG I-2: CONSTRUCT 4-LANE TOLLWAY WITH INTERCHANGES	GPW	$40,400,000	2017
17055		Chambers	TXDOT BEAUMONT DISTRICT	SH 146	SH 146 SB AT IH 10 AND	IH 10 WB FRTG RD AT SH 146 NB	CONSTRUCT MEDIAN IMPROVEMENTS AND EXTEND AND WIDEN TURN LANES	SH 146	$288,000	2018
17057	2242-02-022	Chambers	TXDOT BEAUMONT DISTRICT	FM 2354	FM 3180	FISHER RD	ADD CENTER LEFT TURN LANE AND WIDEN SHOULDERS. ADD NB LEFT TURN LANE AT FISHER ROAD.	Thoroughfare Development	$2,397,000	2018
17058	3271-01-015	Chambers	TXDOT BEAUMONT DISTRICT	FM 3180	IH 10	FM 2354	WIDEN TO 4-LANES WITH CLTL AND 10FT SHOULDERS	Thoroughfare Development	$3,815,000	2018
17059	0508-02-120	Chambers	TXDOT BEAUMONT DISTRICT	FM 3180, IH 10	FROM EAGLE DR TO 0.25 MI. S OF IH-10	FROM 0.38 MI. W OF FM 3180 TO 0.49 MI. E OF FM 3180	CONSTRUCT IH-10 OVERPASS AND RECONSTRUCT FM 3180 AT GRADE. RECONFIGURE FM 3180 CONNECTIONS TO IH-10.	Thoroughfare Development	$27,584,000	2018
536	0389-13-039	Harris	CITY OF BAYTOWN	SH 146	AT BS 146E	FERRY RD	CONSTRUCT 4 MAINLANES AND GRADE SEPARATION	SH 146	$47,090,744	2020
10794		Harris	CITY OF BAYTOWN	CEDAR BAYOU LYNCHBURG ST	GARTH RD	DECKER DR/ SP 330	WIDENING TO 4-LANES WITH CLTL	Thoroughfare Development	$25,552,282	2017
14580		Harris	CITY OF BAYTOWN	CEDAR BAYOU LYNCHBURG ST	N MAIN ST	SJOLANDER RD	WIDEN AND RECONSTRUCT ROADWAY	Thoroughfare Development	$6,307,440	2017
17095	0912-72-359	Harris	CITY OF BAYTOWN	GARTH RD	IH 10	SH 146	ROW ACQUISITION FOR CONGESTION AND SAFETY IMPROVEMENTS (ACCESS MANAGEMENT AND WIDENING FROM 4 TO 6 LANES IN SECTIONS)	Thoroughfare Development	$1,090,000	2020
137	0389-05-087	Harris	TXDOT HOUSTON DISTRICT	SH 146	FAIRMONT PARKWAY	RED BLUFF RD	WIDEN TO 6-LANES WITH TWO 2-LANE FRONTAGE ROADS	SH 146	$41,570,000	2018
139	0389-05-088	Harris	TXDOT HOUSTON DISTRICT	SH 146	RED BLUFF RD	NASA 1	WIDEN TO 8-LANES, GS AT MAJOR INTERSECTIONS AND 2 2-LANE FRONTAGE ROADS	SH 146	$29,000,000	2018
315	3510-08-001	Harris	TXDOT HOUSTON DISTRICT	SH 99	MONTGOMERY C/L	LIBERTY C/L	SEG H: CONSTRUCT 4-LANE TOLLWAY WITH INTERCHANGES AND TWO NON-CONTINUOUS 2-LANE FRONTAGE ROADS	GPW	$40,700,000	2017
14264	3187-01-009	Harris	TXDOT HOUSTON DISTRICT	SH 99	BS 146 W	SH 146	SEG I-2: CONSTRUCT 4-LANE TOLL WAY WITH INTERCHANGES AND TWO NON-CONTINUOUS 2-LANE FRONTAGE ROADS	GPW	$108,000,000	2017
14632	0389-05-116	Harris	TXDOT HOUSTON DISTRICT	SH 146	NASA RD 1	GALVESTON/HARRIS CL	WIDEN TO 6-LANE ARTERIAL WITH 4-LANE EXPRESS LANES	SH 146	$79,700,000	2018
16236	3187-01-011	Harris	TXDOT HOUSTON DISTRICT	SH 99	BS 146 E	CHAMBERS C/L	SEG I-2: CONSTRUCT 4-LANE TOLLWAY WITH INTERCHANGES	GPW	$22,700,000	2017
17042		Harris	TXDOT HOUSTON DISTRICT	IH 10 E	GARTH RD	CHAMBERS C/L	INSTALL ITS EQUIPMENT AND INFRASTRUCTURE (144-STRAND FIBER TRUNK LINE, CLOSED-CIRCUIT CAMERAS, DYNAMIC MESSAGE SIGNS RADAR-BASED VEHICLES SENSING DEVICES AND TRAVEL TIME READERS)	ITS/Safety	$5,734,000	2018
17046		Harris	TXDOT HOUSTON DISTRICT	SH 146	FAIRMONT PKWY W	NASA 1	INSTALL ITS EQUIPMENT AND INFRASTRUCTURE (144-STRAND FIBER TRUNK LINE, CLOSED-CIRCUIT CAMERAS, DYNAMIC MESSAGE SIGNS RADAR-BASED VEHICLES SENSING DEVICES AND TRAVEL TIME READERS)	ITS/Safety	$3,647,000	2018
17075		Harris	TXDOT HOUSTON DISTRICT	SH 99	IH 10	FORT BEND C/L	INSTALL ITS EQUIPMENT AND INFRASTRUCTURE (144-STRAND FIBER TRUNK LINE, CLOSED-CIRCUIT CAMERAS, DYNAMIC MESSAGE SIGNS RADAR-BASED VEHICLES SENSING DEVICES AND TRAVEL TIME READERS)	ITS/Safety	$4,487,000	2020

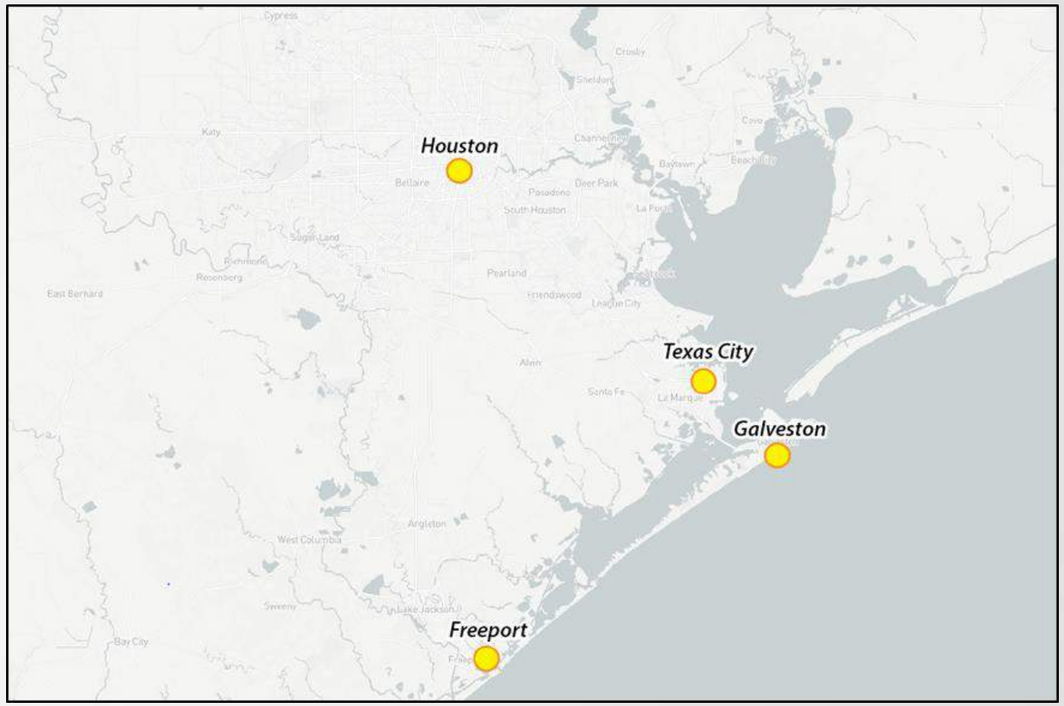
Source: H-GAC 2017-2020 TIP - Draft Project List

Relevant Study Excerpts


Ports Area Mobility Study
Workshop January 24th 2018
Regional Collaboration • Transportation Planning • Multimodal Mobility
METROPOLITAN PLANNING ORGANIZATION

Study Background

- Recommendation from 2012 HGAC Regional Goods Movement Study to directly connect the region's ports with emerging markets in the region and all points beyond.
- Consideration of other issues:
  - Diverting freight flow away from congested urban core
  - Changes in commodity flows (e.g. foreign crude oil imports versus domestic production)
  - Panama canal expansion
  - Growth in chemical manufacturing



Regional Collaboration • Transportation Planning • Multimodal Mobility

METROPOLITAN PLANNING ORGANIZATION

Study Objectives

- Identify freight and goods supply chains that are dependent upon on the region's port facilities
- Identify improvements to better facilitate port related freight mobility:
  - Infrastructure and facilities
  - Multimodal improvements
  - Operational strategies
  - Policy-level changes

Regional Collaboration • Transportation Planning • Multimodal Mobility

Study Activities

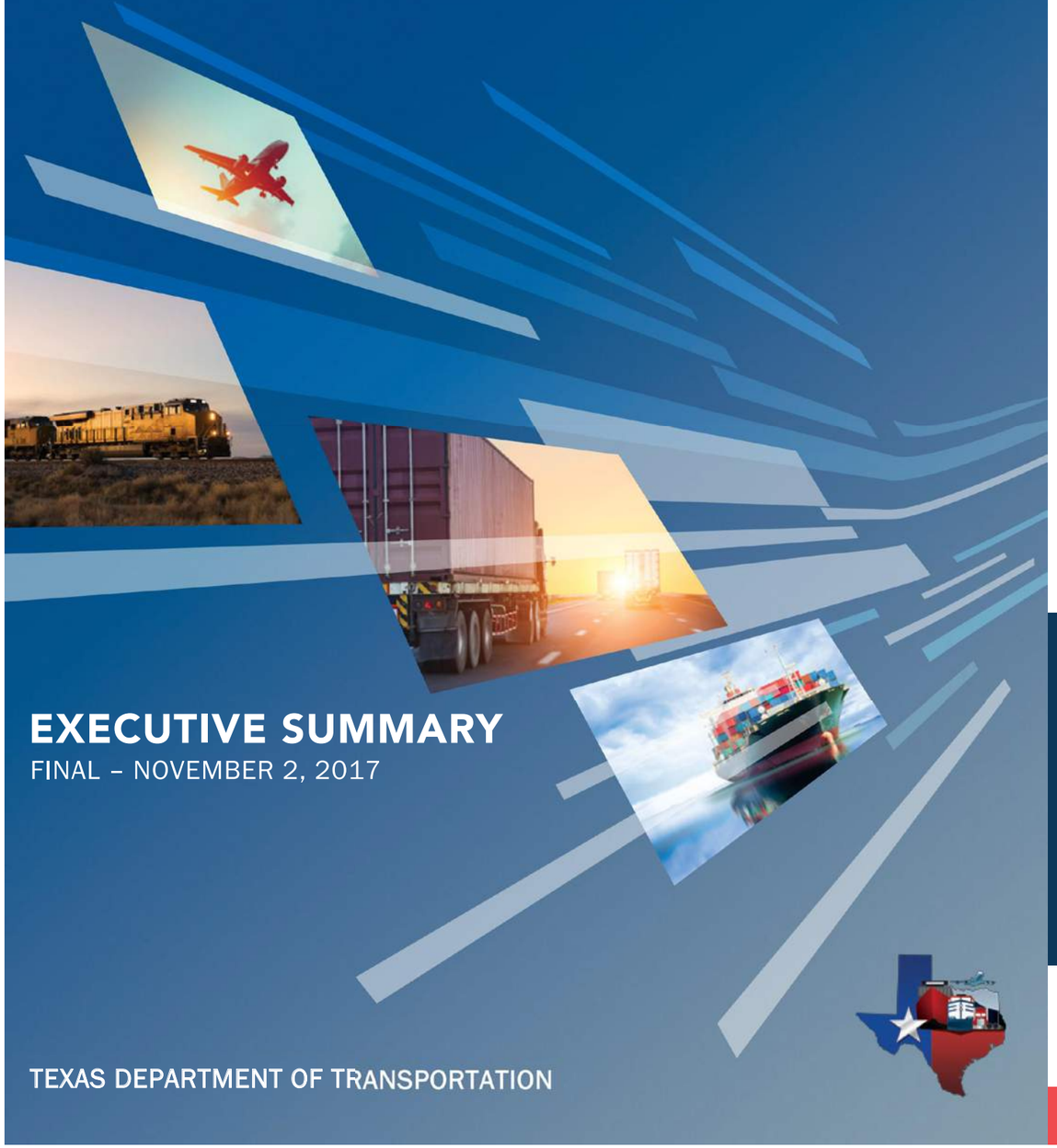
- Port profiles
- Data gathering and analysis
  - Trade and Cargo flow
  - Truck Counts
  - ATRI Truck GPS
  - Truck driver surveys
- Supply Chain Analysis
- Improvements/project identification, assessment, prioritization

Regional Collaboration • Transportation Planning • Multimodal Mobility

- Please contact the following project staff if you have more comments or questions:
  - HGAC – Patrick.mandapaka@h-gac.com
  - HGAC – Shain.Eversley@h-gac.com
  - HDR – Reddy.Edulakanti@hdrinc.com

Regional Collaboration • Transportation Planning • Multimodal Mobility

TEXAS FREIGHT MOBILITY PLAN 2017



EXECUTIVE SUMMARY

FINAL – NOVEMBER 2, 2017

TEXAS DEPARTMENT OF TRANSPORTATION

2017 TEXAS FREIGHT MOBILITY PLAN

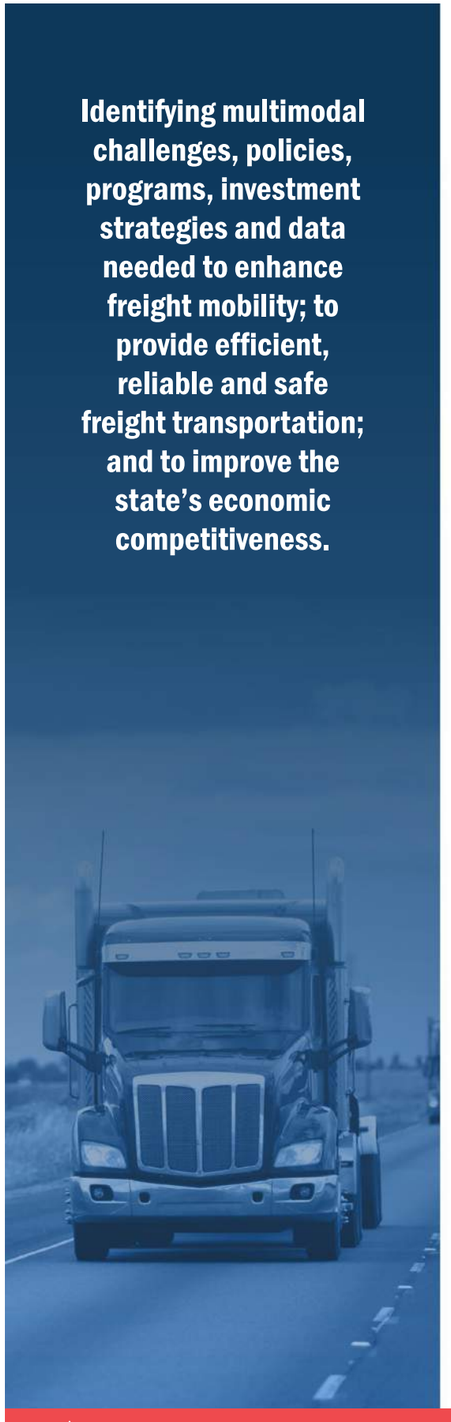
EXECUTIVE SUMMARY

Purpose and Goals

The 2017 Texas Freight Mobility Plan (Freight Plan) provides the state with a blueprint for facilitating continued economic growth through a comprehensive, multimodal strategy for addressing freight transportation needs and moving goods efficiently and safely throughout the state. The plan also meets federal requirements in the Fixing America's Surface Transportation (FAST) Act of 2015.

> ***"With one in sixteen jobs in Texas directly supported by freight transportation, the importance of setting the right course for and investing in our state's freight mobility improvements can't be overstated."***
>
> *— Ed Emmett, Harris County Judge*

Identifying multimodal challenges, policies, programs, investment strategies and data needed to enhance freight mobility; to provide efficient, reliable and safe freight transportation; and to improve the state's economic competitiveness.



Freight Plan Goals

Safety
Improve multimodal freight transportation safety.

Economic Competitiveness
Improve the contribution of the Texas freight transportation system to enhance economic competitiveness, productivity and development of the state.

Asset Preservation
Maintain and preserve freight infrastructure assets using cost-beneficial treatment.

Mobility and Reliability
Reduce congestion and improve freight system efficiency and performance.

Multimodal Connectivity
Provide transportation choices and improve system connectivity for all freight modes.

Stewardship
Manage environmental and TxDOT resources responsibly and be accountable in decision-making.

Customer Service
Understand and incorporate citizen and business feedback in decision-making processes and be transparent in all TxDOT communications.

Sustainable Funding
Identify sustainable funding sources for improvement to all freight modes.

Texas Freight Transportation Needs and Challenges

Freight transportation needs and challenges were identified by assessing existing conditions, projecting future needs based on forecasts of freight movement in 2045, and stakeholder input.

Congestion
- Cost Texas industry $5 billion in 2015.
- Texas was home to 6 of the top 25 U.S. freight bottlenecks in 2016.
- Dallas-Fort Worth and Houston are top 10 in U.S. for trucking congestion costs.
- Lack of alternate routes.

System Operations
- Lack of ITS infrastructure on the Texas Highway Freight Network.
- Lack of statewide traffic management center.
- Lack of freight network operational plan.

Safety
- Over 23,000 truck involved crashes in 2016.
- 232 at-grade rail crossing crashes in 2016 with 20 fatalities.
- Shortage of truck parking and lack of real-time data on parking availability.

Asset Preservation
On the Texas Highway Freight Network:
- 76 bridges in poor or worse condition.
- 13 bridges with weight restrictions.
- 291 bridges with vertical clearance under 15 feet.

Rural Connectivity
- Many critical first and last mile connectors have obsolete design.
- Continued agriculture and energy activity can strain infrastructure.
- Lack of alternate routes.

Multimodal Connectivity
- Many intermodal connectors are in highly congested urban areas.
- Coordination among the various modes and agencies.
- Condition of first- and last-mile connections to ports and other intermodal facilities.

International Border Crossings
- Lack of coordinated border crossing management.
- Long and unpredictable border wait times impact competitiveness.
- Increasing border trade leading to bottlenecks on access routes.

Public Awareness/ Education
- Lack of awareness of freight transportation safety issues.
- Lack of awareness of the role of freight transportation.
- Lack of awareness of cost and funding challenges for freight projects.

Funding
- Lack of flexibility in existing funding sources.
- $66 billion in freight project costs.
- $40 billion in funding gap.

Planning and Investing for Success

The Freight Plan provides a guide for the state to address its freight transportation needs. The Freight Plan establishes goals and strategies to guide strategic investment decisions and prioritize projects that support the state's transportation and economic development goals. The strategies fall into three categories: policy, program and project recommendations.

The recommendations address the numerous freight transportation challenges identified in this plan. The Freight Plan focuses on short- and mid-term strategies, as well as plans for the longer term strategic freight transportation investments, needed to address future freight movements to enhance the state's economic competitiveness.

It is important to note that not all the recommendations outlined in the Freight Plan fall under the jurisdiction of TxDOT. Some are the responsibility of federal agencies, other state agencies, MPOs, local governments, private sector entities such as railroads, ports, border ports-of-entry, and other agencies.

The recommended multimodal freight improvement strategy outlines statewide freight policy, program enhancements, and projects that will:

- Strengthen the freight and logistics industry in Texas by promoting a multimodal approach to freight mobility, reliability, efficiency and safety.
- Support long-term population, freight and economic growth, economic competitiveness and quality of life.
- Preserve, enhance and grow the Texas Multimodal Freight Network.

There are 21 freight policy recommendations, 13 freight program recommendations and over 2,500 multimodal projects identified in the 2017 Freight Plan. Implementing these recommendations will address freight transportation needs identified in this Freight Plan.

Freight Policy Recommendations

There are 21 freight policy recommendations that cover:

- TxDOT Freight Planning Capacity and Activities
- Multimodal Freight Network Designation and Investment
- Texas Highway Freight Network Design Guidelines and Implementation
- Multimodal Freight Planning, Programming and Implementation
- Multimodal Connectivity
- Rural Connectivity
- Economic Development and Economic Competitiveness
- Texas as a Global Trade and Logistics Hub and Gateway
- Safety, Security and Resiliency of the Freight Transportation System
- Freight Transportation Asset Preservation
- Freight-Based Technology Solutions and Innovation
- Stewardship and Project Delivery
- International Border Crossings
- Energy Sector Development Transportation
- Rail Freight Transportation
- Port and Waterway Freight Transportation
- Air Cargo Transportation
- Pipeline Infrastructure
- Funding and Financing
- Institutional Coordination and Collaboration
- Public Education and Awareness

Freight Program Recommendations

The program recommendations support the policies outlined above and address the freight transportation challenges identified in the Freight Plan. Key program recommendations include:

- Continue to administer a comprehensive and multimodal TxDOT Freight Planning Program
- Develop a freight movement public education and public awareness program
- Develop and implement a statewide, technology-based freight safety and operations program
- Implement freight centric design guidelines
- Develop the Texas Highway Freight Network with freight-centric programs for Safety, Bridge Reconstruction, Interchange Reconstruction, and Statewide Construction Management and Coordination
- Develop a Statewide Commercial Vehicle Traffic Center and Incident Management Program

Freight Project Recommendations

The multimodal freight transportation project recommendations reflect the magnitude and complexity of moving freight in Texas and investment needed to address the challenges identified in the Freight Plan. There are over 2,500 planned multimodal projects at an estimated cost of $66 billion in the Freight Plan. Implementing these project recommendations will not only help achieve TxDOT's goals for safe and efficient freight transportation but also enhance the state's economic competitiveness. Project recommendations are divided into two components:

- ***Unconstrained Freight Investment Plan***
- ***5-Year Financially Constrained Freight Investment Plan***

The Unconstrained Freight Investment Plan

The Unconstrained Freight Investment Plan contains all planned and proposed freight projects in the Freight Plan. This includes planned TxDOT projects from the 2018 Unified Transportation Program and Project Tracker, public- and private-sector rail projects, stakeholder proposed projects, and strategic projects of statewide significance.

There are 2,582 multimodal freight projects costing an estimated $66 billion. These projects include planned highway and rail projects as well as proposed projects, many of which are multimodal.

The Unconstrained Freight Investment Plan identifies 2,360 planned highway projects for an estimated cost of $64.4 billion. $24.2 billion of funding has been identified, leaving a $40.2 billion shortfall. Additional proposed projects are estimated to bring the total cost to $66 billion or more.

Unconstrained Highway Projects

Priority	Partially Funded		Fully Funded		Total	
	Number	Cost (millions)	Number	Cost (millions)	Number	Cost (millions)
High	263	$28,720	430	$10,353	693	$39,073
Medium	412	$13,830	790	$6,265	1,202	$20,095
Low	143	$3,275	322	$1,909	465	$5,184
Total	*818*	*$45,825*	*1,542*	*$18,527*	*2,360*	*$64,352*

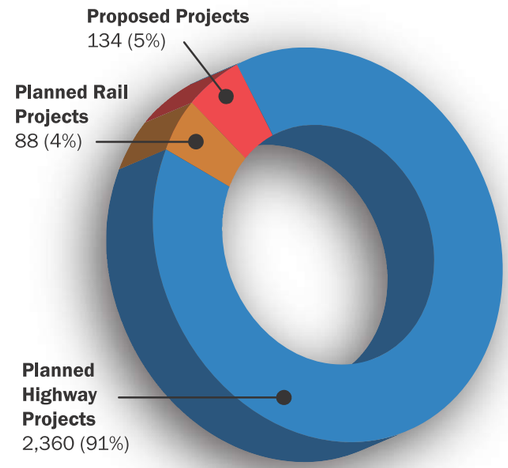
There are 263 high priority highway freight projects that are partially funded. These projects have a total cost of $28.7 billion and a shortfall of $24.9 billion.

There are 88 rail projects costing over $1.3 billion. Five of these projects are fully funded projects to rehabilitate the South Orient Railway. The funding comes from TxDOT, a federal FASTLANE grant and a matching contribution from a private sector rail company. The remaining projects may require private sector involvement and are not yet fully funded.

Unconstrained Rail Projects

	Partially Funded		Fully Funded		Total	
	Number	Cost (millions)	Number	Cost (millions)	Number	Cost (millions)
Total	*83*	*$1,279*	*5*	*$21*	*88*	*$1,300*

Unconstrained Freight Investment Plan Projects



The Unconstrained Freight Investment Plan includes 2,582 projects with an estimated cost of $66 billion

Summary of Highway Projects in the Unconstrained Freight Investment Plan by Need

# of Projects		Cost
325	Rural and Alternative Routes	$16 Billion
365	Asset Preservation	$2 Billion
796	Mobility and Reliability	$45 Billion
847	Safety	$700 Million
27	Technology	$159 Million
2,360	*TOTAL*	*$64 Billion*

Proposed Freight Projects

In addition to the planned projects in the Unconstrained Freight Investment Plan, projects that are not yet in any TxDOT or MPO plans were proposed by the TxFAC, ports, railroads, MPOs, and stakeholders throughout the state. Some of these projects were proposed to meet existing needs while others focused on meeting future or anticipated needs. These projects provide multimodal access to border crossings, ports, airports, intermodal rail yards, energy development and agricultural areas.

There are 134 proposed unplanned freight projects in the Unconstrained freight Investment Plan, including:

- ***65 projects** from the 23 stakeholder workshops held throughout the state.*
- ***47 projects** from the ports costing an estimated $1.8 billion.*
- ***22 projects** from the public and other stakeholders.*

Additionally, the TxFAC developed a list of two strategic projects and two strategic initiatives to advance future freight mobility and the state's continued economic competitiveness.

These unmet needs and proposed projects provide the opportunity to inform project development processes carried out by TxDOT districts, MPOs and local agencies. The proposed projects address:

- ***Congestion***
- ***Safety***
- ***Connectivity***
- ***Economic development needs***
- ***Asset preservation***

Unmet Freight Needs on the Texas Highway Freight Network

14,640 miles on the THFN with **identified freight needs** and over **5,990 miles** with **no identified project** to meet those needs

4,809 miles on the THFN with medium and high **mobility and reliability needs** with **no identified projects**

5,899 miles on the THFN with **unmet safety needs**

242 miles with **unmet asset management needs**

299 bridges on the THFN have vertical clearance of less than 15 feet

Over **686 miles** or **5.8%** of the **Texas interstates do not have frontage roads**

5-Year Freight Investment Plan

The Texas 5-year Freight Investment Plan includes only fully-funded projects during Fiscal Years 2018 through 2022. There are 612 projects in the 5-Year Freight Investment Plan at an estimated cost of $11.5 billion.

Projects by Goal Area

- ***Safety:* *39% of projects and 1% of cost***
- ***Mobility and Reliability:* *35% of projects and 67% of cost***
- ***Rural and Alternate Routes:* *14% of projects and 27% of cost***
- ***Asset Preservation:* *10% of projects and 5% of cost***
- ***Technology:* *2% of projects and less than 1% of cost***

Projects by Corridor

- ***80% of the National Primary Highway System***
- ***40% of the Texas Highway Freight Network***

5-Year Freight Investment Breakdown

612 projects that are fully-funded at an estimated cost of **$11.5 billion**

- **599** highway projects
- **8** rail/highway grade separation projects
- **5** rail projects

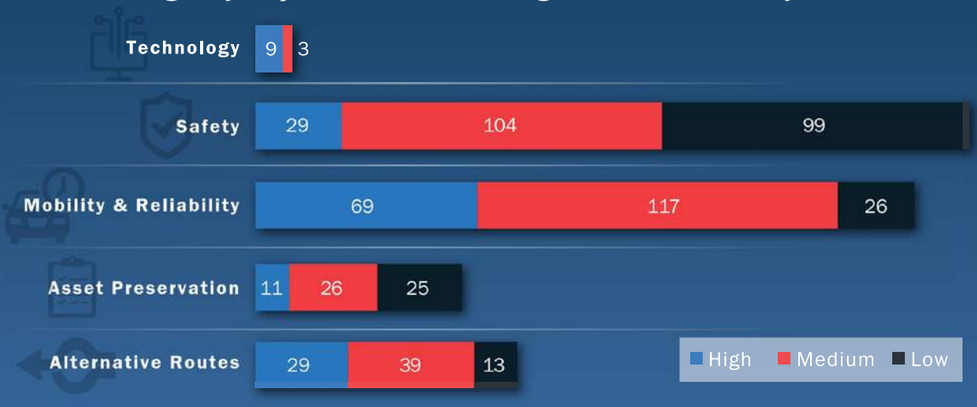
Highway projects include:

- **2** port access projects at an estimated cost of **$33 million**
- **3** air cargo access projects at an estimated cost of **$168 million**
- **31** commercial border crossing access projects at an estimated cost of **$340 million**

National Highway Freight Program Funds:

- **235** projects at an estimated cost of **$7.4 billion** are eligible
- **377** projects at an estimated cost of **$4.2 billion** *are not eligible*

Number of Highway Projects in the 5-Year Freight Investment Plan by Need and Priority



Texas Freight Mobility Plan Implementation

Implementation of Freight Plan Recommendations

An effective implementation of policies, programs and projects ensures that the goals of the plan are achieved. The implementation plan should be re-evaluated on a regular basis to adapt to freight needs and changes in priorities, funding sources and resources.

Actions for Implementing the Freight Policy Recommendations

Short-Term Freight Policy Actions	Medium-Term Freight Policy Actions
• Adopt the updated Texas Multimodal Freight Network. • Enhance flexibility for funding and financing multimodal freight projects. • Adopt change to develop multimodal freight planning, programming and implementation guidelines. • Develop and adopt freight centric design standards for the Texas Highway Freight Network. • Invest in multimodal solutions. • Align transportation investments with the state's vision for economic growth. • Develop Texas as a premier international trade and logistics gateway. • Pursue strategies to reduce crash rates and fatalities on the Freight Network. • Build awareness of the importance of freight movement to the state's economy. • Partner with railroads to develop rail solutions to ease highway traffic congestion.	• Invest in the preservation of the Texas Multimodal Freight Network. • Establish TxDOT as a leader in freight-based technology solutions and innovation. • Address air cargo in the next update of the TxDOT Texas Airport System Plan. • Improve the operational management of the Texas Highway Freight Network. • Identify current and future energy transportation needs and impacts. • Support strategies that address pipeline capacity needs and challenges. • Identify strategies to expand and improve maritime freight movements. • Coordinate with stakeholders to address multi-jurisdictional freight challenges. • Facilitate international border coordination to improve border crossing mobility.

Actions for Implementing the Freight Program Recommendations

Short-Term Freight Program Actions	Medium-Term Freight Program Actions
• Continue to develop and administer a comprehensive and multimodal TxDOT Freight Planning Program. • Develop a Freight Movement Public Education and Awareness Program. • Conduct a comprehensive and coordinated Texas-Mexico border master plan. • Conduct a Statewide Truck Parking and Rest Stop Study. • Develop a comprehensive Freight Rail Development and Improvement Program. • Continue to implement Freight Network Bridge Reconstruction and Replacement Program. • Develop a Highway Freight Network Design, Construction and Safety Standards Program.	• Develop a Statewide Traffic Management Center Concept of Operations and implementation Plan. • Develop a Statewide Commercial Vehicle Traffic Incident Management Program. • Develop a Statewide Construction Management and Coordination Program. • Develop resiliency strategies for the Texas Multimodal Freight Network. • Conduct a comprehensive statewide HAZMAT Transportation Study. • Develop an Off-Peak and 24-hour Operation Pilot Program.

Implementing the Unconstrained Freight Investment Plan

The Unconstrained Freight Investment Plan provides a challenge since there is a significant funding gap between the projects identified and the funding available. As a result, these projects face higher risk of not being implemented and will require more focus on the part of TxDOT, MPOs, local agencies and private sector stakeholders in terms of monitoring the progress and ensuring that high-priority projects remain in the Unified Transportation Program and other project development plans.

Priority	Partially Funded		Fully Funded		Total	
	Number	Cost (millions)	Number	Cost (millions)	Number	Cost (millions)
High	263	$28,720	430	$10,353	693	$39,074
Medium	412	$13,830	790	$6,265	1,202	$20,095
Low	143	$3,275	322	$1,909	465	$5,185
Not Prioritized	217	$1,279	5	$21	222	$1,300
Total	***1,035***	***$47,104***	***1,547***	***$18,548***	***2,582***	***$65,654***

**Stakeholder proposed projects and rail projects were not prioritized. Cost for many proposed projects have not been developed, and the full cost to implement all projects will be higher.*

The Unconstrained Freight Investment Plan represents TxDOT's comprehensive plan for longer range investment in the Texas Multimodal Freight Network, identifying 2,582 projects at an estimated cost of $66 billion. About 60% of the projects are fully funded, but the fully funded projects only represent 28% of the estimated $66 billion total cost.

The real challenge for TxDOT, MPOs, local agencies and private sector stakeholders is to focus funding on the highest priority freight projects while identifying additional revenue and flexible funding options to close the funding gap.

Implementing the 5-Year Freight Investment Plan

The 5-Year Financially Constrained Freight Investment Plan represents immediate and short-term strategies that are already scheduled for implementation. These projects have a high probability of being constructed in the short term. The focus should be on advancing the high priority projects that support safe and efficient movement of goods and advance the state's economic development goals.

Year	Number of Projects		Cost Estimate (Thousands)	
	Number	Percentage	Cost	Percentage
2018	215	35%	$2,190,666	19%
2019	184	30%	$2,357,467	21%
2020	101	17%	$2,455,423	21%
2021	60	10%	$3,131,949	27%
2022	52	8%	$1,373,884	12%
Total	***612***	***100%***	***$11,509,391***	***100%***

Highway Projects in the 5-Year Freight Investment Plan

Priority	Number of Projects		Cost Estimate (Thousands)	
	Number	Percentage	Cost	Percentage
High	147	25%	$6,248,355	56%
Medium	289	48%	$3,860,514	34%
Low	163	27%	$1,176,868	10%
Total	***599***	***100%***	***$11,285,737***	***100%***

- ***High priority projects only represent 25% of projects.***
- ***Medium and low priority projects in the 5-Year Freight Investment Plan represent 75% of the projects and 45% of the estimated cost.***
- ***82% of the projects represent 61% of the estimated cost in the 5-Year Freight Investment Plan and are scheduled to commence during the first three years of the 5-Year Freight Investment Plan.***

Strategic Freight Transportation Projects

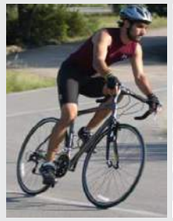
Strategic freight project recommendations are proposed, unplanned investments that will address the state's projected future freight transportation growth as well as address current unmet needs. These strategic projects rise to a higher level due to the potential impact on statewide and national freight movements and economic competitiveness. The Texas Freight Advisory Committee played a key role in proposing these strategic projects based on current and future freight volumes, trends and opportunities.

Strategic Freight Projects and Initiatives

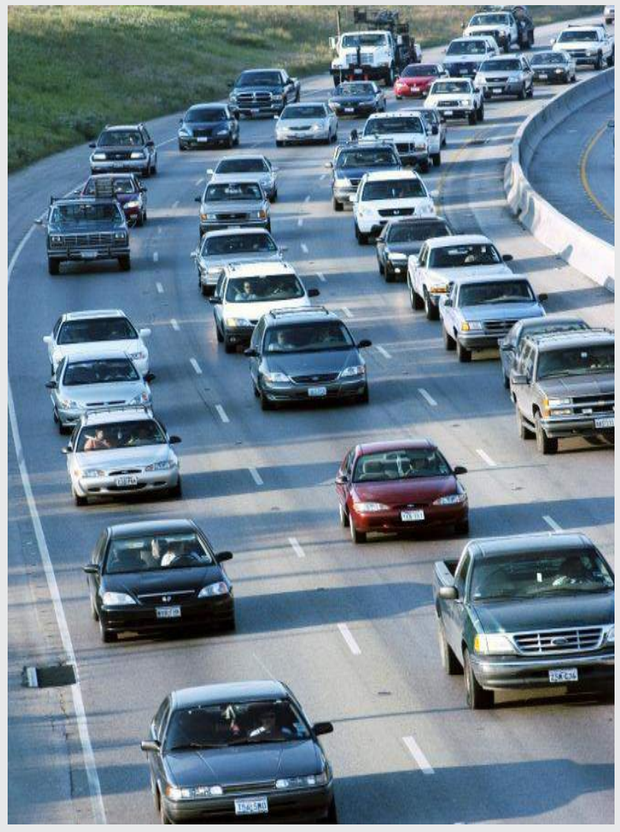
Project	Description	Recommended Action
I-69 Bypass	From Grand Parkway to I-69 (Wharton County)	Undertake project development and conceptual design for bypass route to service area ports.
I-27	From Lubbock to Laredo	Conduct feasibility study for the extension of I-27 to catalyze economic development through improved trade flows and connectivity.
Initiative	**Description**	**Recommended Action**
Texas Global Gateway Concept	A program of projects, policies and actions necessary to expand Texas' role as a primary gateway for global trade for North America.	Develop a joint action plan between the Border Trade Advisory Committee, Texas Freight Advisory Committee and Port Authority Advisory Committee to outline investments, programs and policies necessary to address needs, opportunities and challenges for expanding global trade through the ports, border crossings and inland gateways.
Multimodal and alternative technology freight corridors	Seaport and border regions	Feasibility study for the development and potential deployment of a multimodal freight corridor study that examines intelligent/alternative transportation modes and technologies to move freight between high density origins and destinations within the state such as between inland distribution hubs and seaports and international border crossings.

TEXAS DEPARTMENT OF TRANSPORTATION



PROJECT AMBASSADORS COMMITTEE MEETING



I-10E
Planning & Environmental Linkages

Meeting #1 | TxDOT Houston District

December 4, 2017

I-10 EAST FREEWAY

CONNECTING TEXAS

WELCOME

TxDOT Project Manager: Grant Chim, P.E.

Agenda

1. Introductions / Purpose of Meeting
2. What is a PEL (Planning & Environmental Linkages) Study?
3. Role of the PAC
4. Purpose of the PEL Study
5. I-10E Study Limits
6. Engagement
7. Technical Process
8. Project Schedule and Next Steps

What is a Planning & Environmental Linkages (PEL) Study?

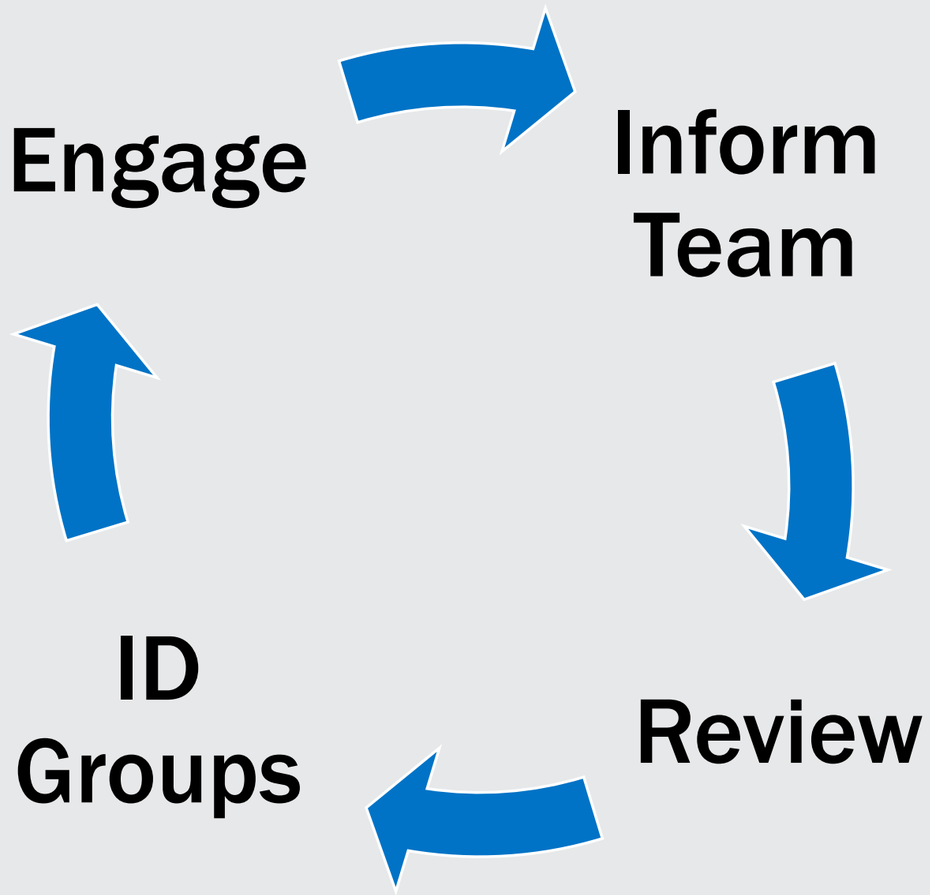
- An early planning study that links planning and the National Environmental Policy Act (NEPA) environmental studies.

- Initiates coordination with oversight agencies, stakeholders, and members of the public.

- Streamlines the overall project development process and minimizes duplication.




Role of the Project Ambassadors Committee (PAC)



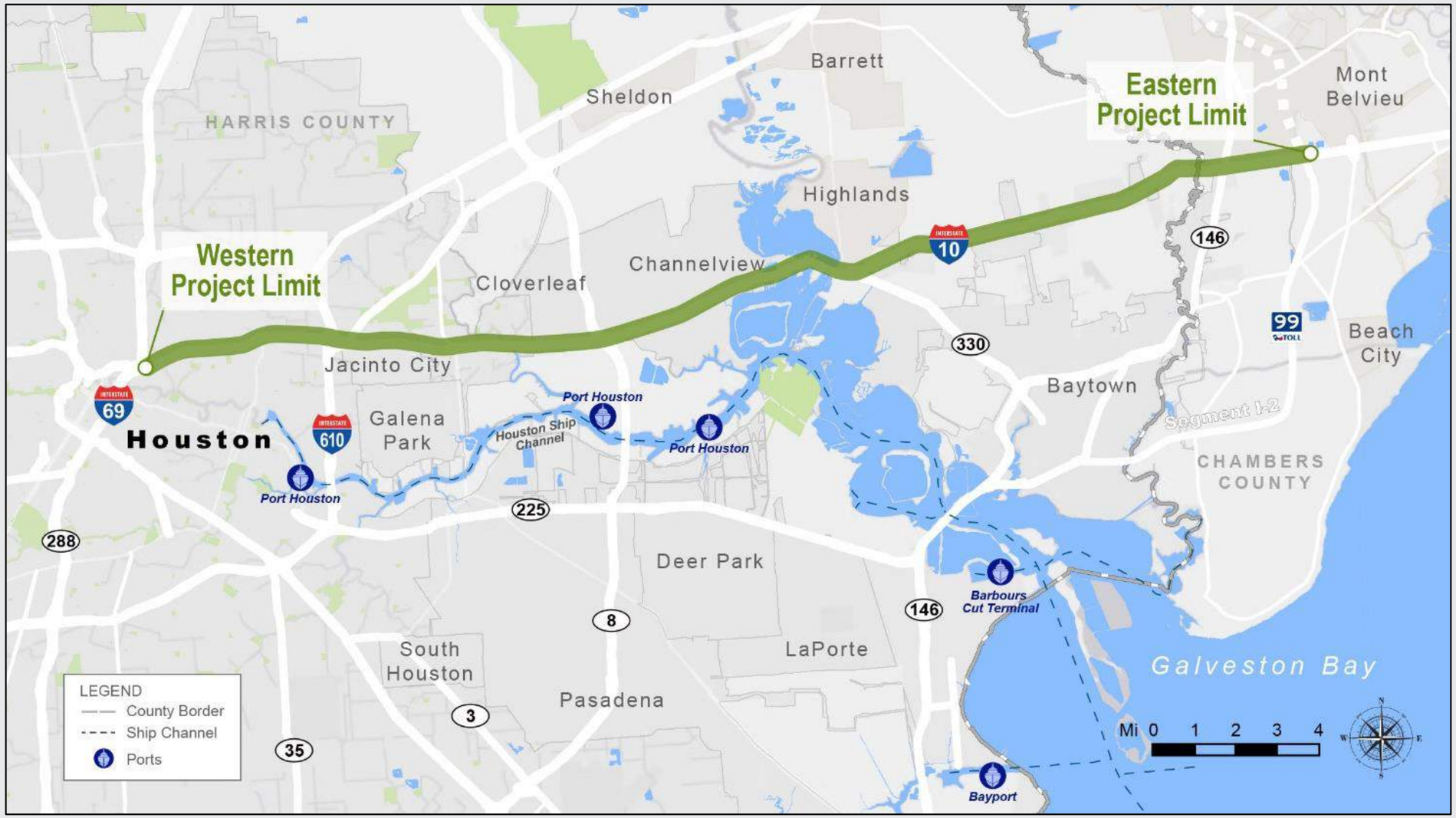
PAC Representatives

- Chambers County
- City of Baytown
- City of Houston
- Harris County
- METRO

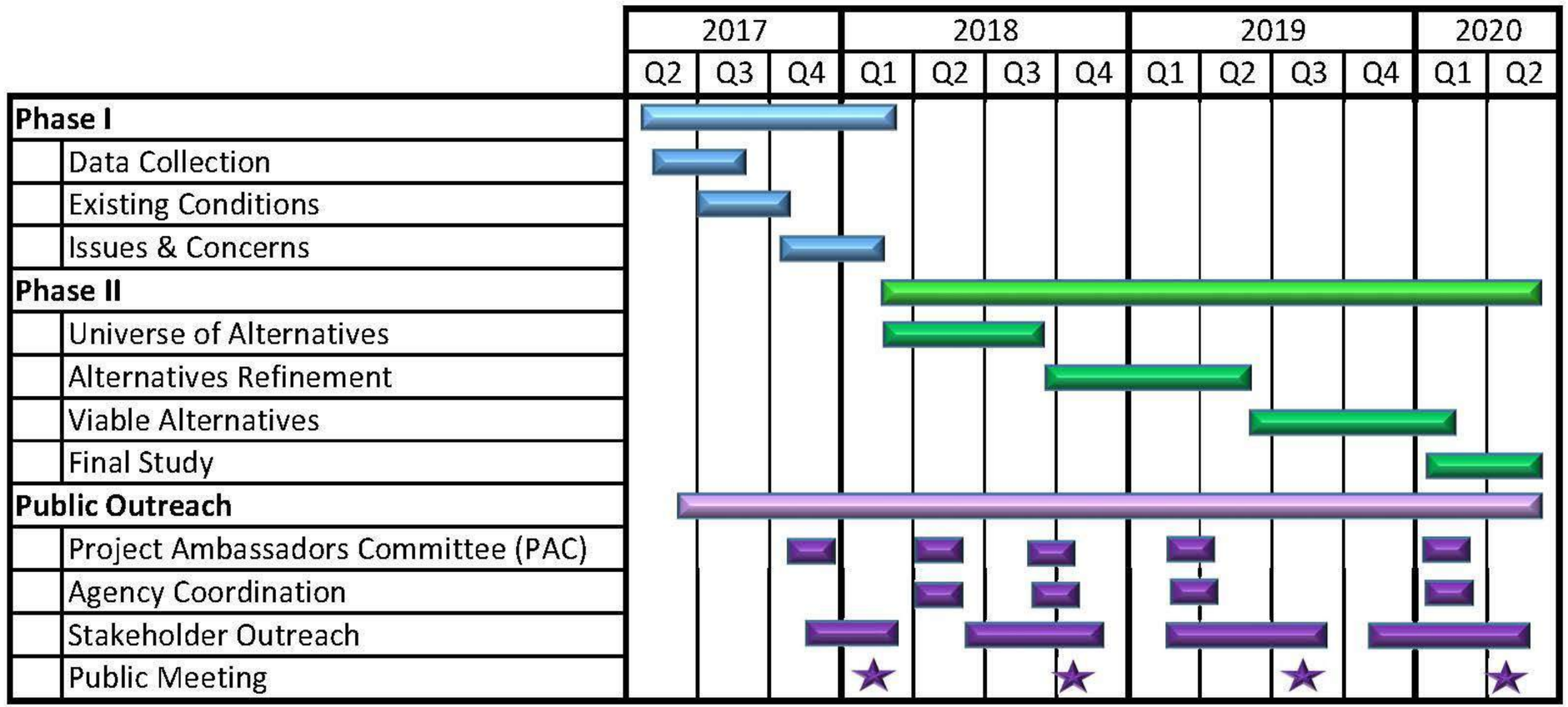
Purpose of the PEL Study

- Explore improvements for a variety of transportation modes, such as high-occupancy vehicle lanes, truck lanes, transit, rail, bicycle, and pedestrian.
- The PEL process will identify projects for future implementation based on needs within the study area.

I-10E Study Limits



Project Schedule

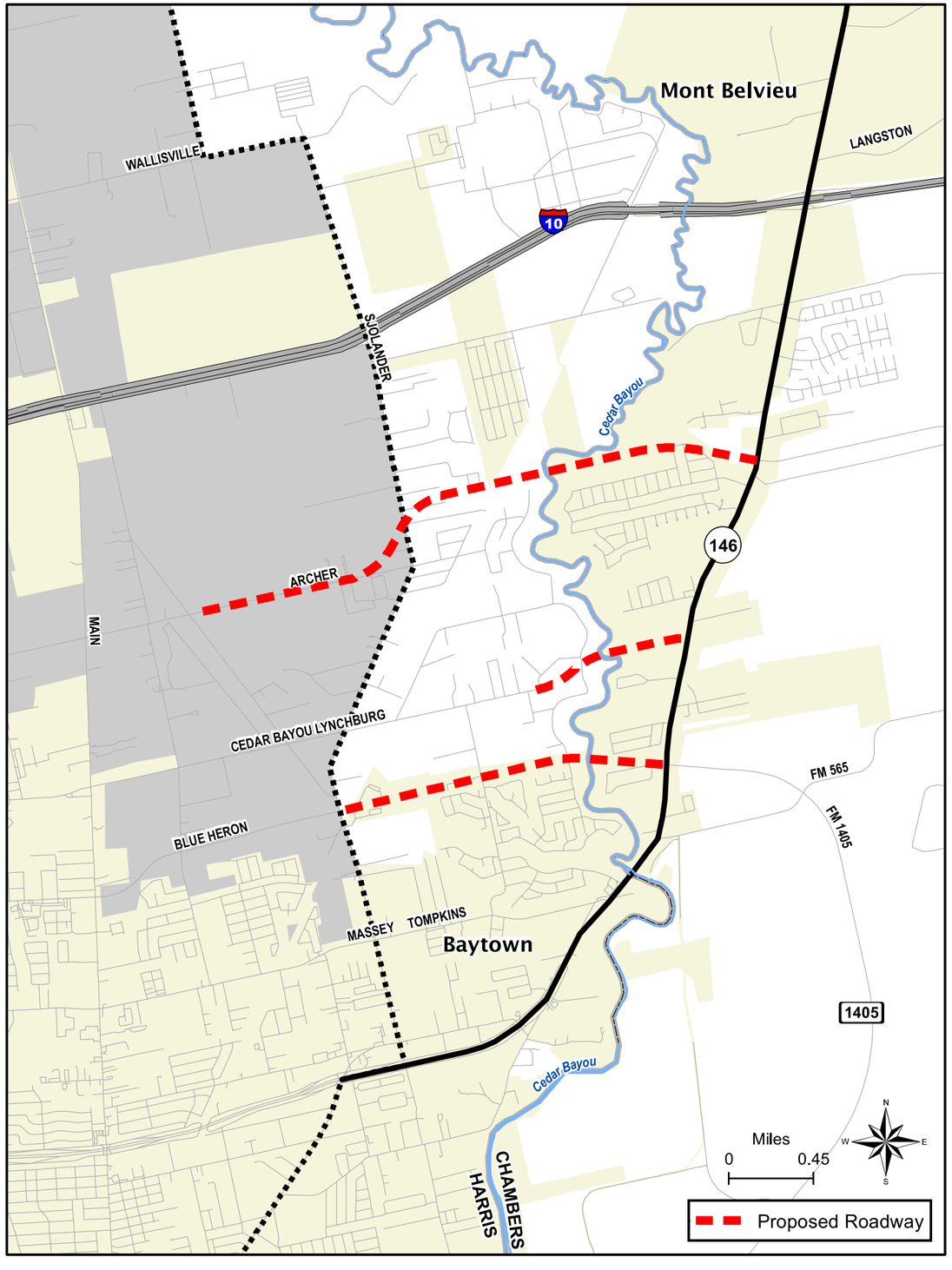


THANK YOU!

Contact:
Grant Chim, P.E.
Grant.Chim@TxDOT.gov
(713) 802-5259

5. CEDAR BAYOU CROSSING

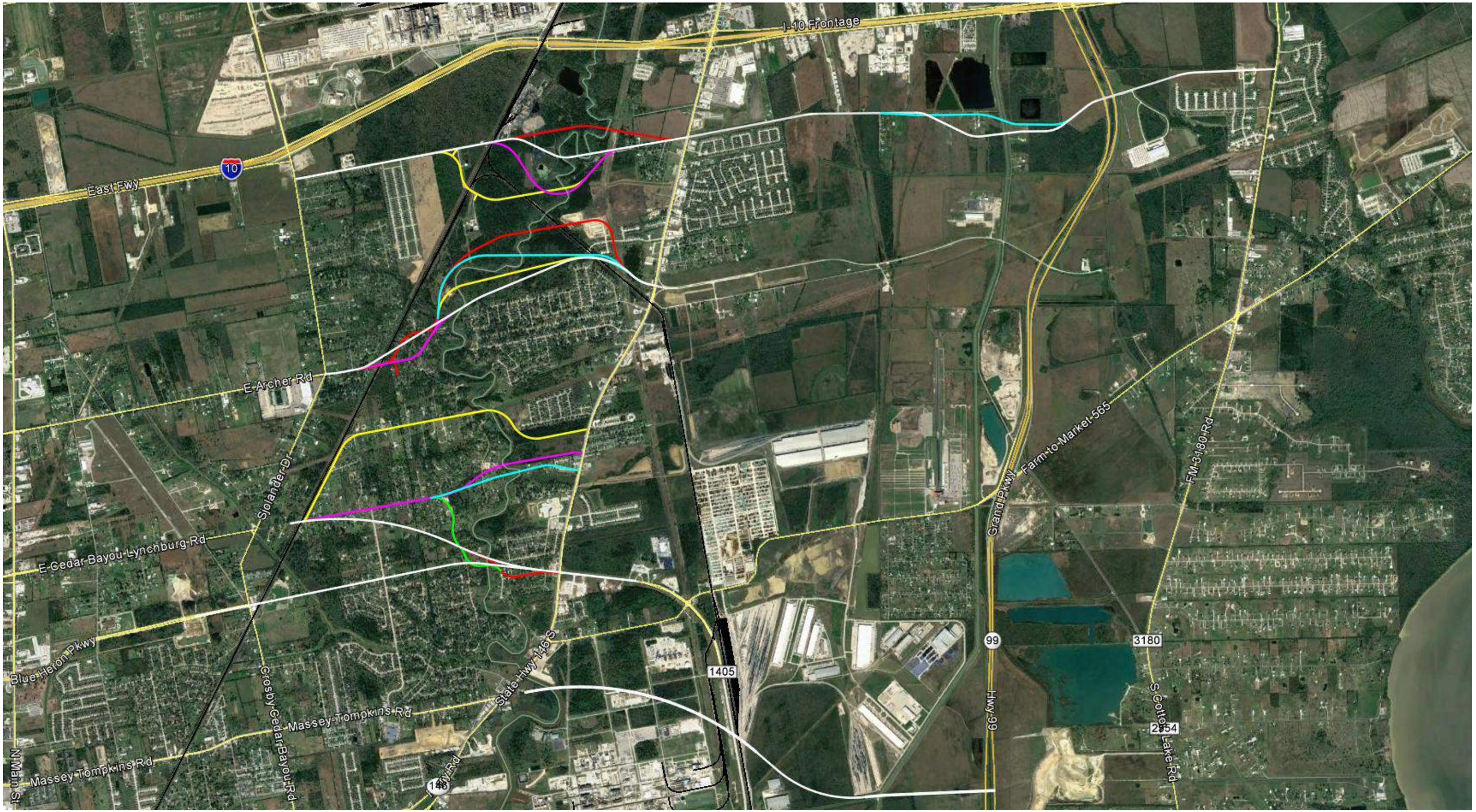
Refined Alternatives



EAST-WEST CONNECTION ALTERNATIVES ANALYSIS RESULTS

Evaluation Criteria			Option A – E. Archer Road	Option B - E Cedar Bayou Lynchburg Rd	Option C - Blue Heron Pkwy
Item No.	**Criteria**	**Unit**	**Quantity**	**Quantity**	**Quantity**
1	Length of roadway (at-grade)	LF	20,000	20,000	20,000
2	Area of bridge structure (over floodplain)	SF	360,000	240,000	200,000
3	Area of bridge structure (over RR/bayou)	SF	90,000	60,000	60,000
4	Number of pipeline crossings	EA	5	0	0
5	Number of **residential** parcels impacted	EA	98	10	24
6	Number of **commercial** parcels impacts	EA	5	1	5
7	Number of **institutional** parcels impacted	EA	8	1	1
8	Number of **other** parcels impacted	EA	6	0	0
9	Area of **residential** parcels impacted	AC	316	22	53
10	Area of **commercial** parcels impacted	AC	20	10	13
11	Area of **institutional** parcels impacted	AC	178	32	32
12	Area of **other** parcels impacted	AC	59	0	0

Unrefined Alternatives


I-10 Frontage
East Fwy
10
E Archer Rd
Sjolander Dr
E Cedar Bayou Lynchburg Rd
Blue Heron Pkwy
N Main St
Massey Tompkins Rd
Crosby Cedar Bayou Rd
State Hwy 146 S
146
1405
Grand Pkwy
Farm to Market 565
99
Hwy 99
3180
FM 3180 Rd
S Cotton Lake Rd
2354