

APPENDIX A

PUBLIC INVOLVEMENT REPORT

PUBLIC MEETING #1 SUMMARY

About the Study

The Houston-Galveston Area Council conducted an access management study for SH 105 to identify transportation improvements that will reduce crashes, improve traffic flow, reduce motorist delay and address multi-modal/land-use context. The study area extends from SH 105 between Loop 336 in Conroe to US 59 in Cleveland, and crosses Montgomery, San Jacinto and Liberty Counties.

Meeting Purpose and Activities

H-GAC hosted a public meeting regarding proposed safety and mobility improvements. The open house meeting was held to introduce the study, show initial recommendations and improvements, and receive public feedback. The meeting date, location and time:

Wednesday, August 10, 2011
 Austin Elementary School
 14796 Highway 105 East
 Conroe, Texas 77306
 6:00-8:00 p.m.

At the meeting, informative boards were staffed by project team members. Attendees were able to speak with team members and have questions answered. Two sets of large table maps of the study area were displayed and attendees were invited to review the short-, medium- and long-term recommendations. Smaller maps of proposed pedestrian improvements and livable center plans were also available for review. Questionnaires were provided to collect comments from attendees. Some attendees took extra copies of the questionnaires to distribute to people who were not able to attend the meeting.

The project boards, presentation, sign-in sheets and completed questionnaires are included as attachments

to the Public Involvement Report, which is a separate document.

Attendance

A total of 72 people attended the public meetings. The following breakdown categorizes the attendees:

General Public	57
Elected Officials/Steering Committee	4
Project Team	11

PUBLICITY SUMMARY

A variety of methods were used to publicize the meetings. The following is a breakdown of the publicity summary. Copies of all publicity items are included in Attachment A.

Direct Mail

Letters were sent to local elected officials 30 days in advance. Two rounds of postcards were mailed to local community groups, the Steering Committee, the Stakeholder Committee, schools, churches, emergency services and property owners within the SH 105 study area. Extra postcards were distributed at Austin Elementary School, Security Community Center, Cut and Shoot Town Hall, and other local area businesses. The map on the following page shows the distribution area of the property owners who received the postcard. The complete mailing lists are included on the enclosed CD.

Newspapers

A public meeting notice was printed in the legal section of The Houston Chronicle, 30 days prior to the meeting. Display ads were printed in English and Spanish in the Conroe Courier and Cleveland Advocate and in Spanish in La Voz, The Houston Chronicle's Spanish language publication. A media release was e-mailed approximately two weeks in advance. An article appeared in Your Houston News.



Newsletters

Notices appeared in H-GAC's Vision and Regional Focus electronic newsletters.

E-Notices

An e-notice was e-mailed to elected officials, the Steering Committee, and individuals from a database of previous meetings.

Social Media

A notice was posted on the H-GAC's website, www.h-gac.com, in the Transportation and Air Quality section and on H-GAC's face book page.

Signs

TxDOT's portable orange construction signs displayed the meeting information on the day of the meetings at two separate locations, near either end of the study corridor.

QUESTIONNAIRE COMMENTS SUMMARY

Questionnaires were distributed to attendees at the meeting. Some attendees took extra questionnaires and distributed them after the meeting. After the meeting, an abbreviated version of the questionnaire (with questions related to walking and bicycling deleted) was provided in electronic file for e-mail distribution; 20 of these abbreviated questionnaires were completed.

A total of 50 completed questionnaires were received, with these summary responses:

Which category best describes your interest?

Local resident.....	46
Public official.....	6
Retail business owner.....	3
Service business owner.....	3
Developer.....	2
School official.....	1
Future retail owner.....	1

Of the tools presented here tonight, which would you like to see used in the corridor?

Four-lane roadway section.....	39
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Left- and right-turn lanes.....	33
New traffic signal installation.....	28
(2 specified Walker Road)	
Improve traffic signal timing/progression.....	25
Center two-way, left turn lane.....	14
Raised median.....	2
Six-lane roadway section.....	7
Driveway reconfiguration.....	1
Locate parking to be set back further.....	1
(Austin Elementary)	
Limit driveway access to SH 105.....	1
Center turn lane.....	1

Which locations along the corridor have the most safety issues?

SH 105 at	
Crystal Forest.....	12
North Walker Road.....	8
Fostoria.....	8
Loop 336.....	7
Willis Waukegan.....	6
Millmac.....	4
Loop 1485.....	4
Austin Elementary School.....	2
Crockett Trace/Emerson Estates.....	2
Crystal Trail.....	2
Flea markets.....	2
Crockett Martin Road.....	1
Duck Creek.....	1
Peach Creek.....	1
Sonic.....	1
Trails End.....	1

The whole highway.....	2
From Loop 336 to Security-Foster Drive.....	2

What transportation-related issues along the SH 105 corridor concern you the most?

Congestion.....	21
Truck traffic.....	10
Access to businesses.....	6
Wrecks and safety concerns.....	6
Speed limits.....	5
Turn lanes.....	3
Not enough lanes.....	2
Access to residences.....	1
All of it.....	1
Elementary school does not need raised median.....	1

Emergency vehicle access.....	1
Intersection or roadway designs.....	1
Mix of slow and fast traffic creates passing hazards.....	1
Mobility.....	1
Road narrowing.....	1
Traffic signal warning lights.....	1

Do you or your employees/students walk along this corridor?

No.....	26
Yes.....	2
2 say they would walk if it were safe	

What sections of SH 105 do you walk along or across?

Walker Rd.....	1
Crystal Forest.....	1
Cross N. Walker; Fostoria; Waukegan; Duck Cr.....	1

What is your destination?

S. Walker.....	1
Loop 336.....	1

Do you or your employees/students bicycle along this corridor?

No.....	26
Yes.....	3

Where do you start and end your bike ride?

Willis.....	1
Waukegan to Loop 336.....	1

Do you have any other general comments on the information presented tonight?

Raised medians will negatively impact businesses.....	5
Need lights, crosswalk, 4 lanes plus turn lane.....	3
Community discouraged by promises and no results... ..	2
Trucks/cars from Louisiana and East Texas use SH 105... ..	1
More lights.....	1
Glad to see improvements.....	1
ROW required?.....	1
Expand SH 105 like Airport Road.....	1
Widen SH 105 between Cleveland and Conroe.....	1
Band-aid approach at Crystal Forest proposed.....	1
Informative presentation.....	1
SH 105 is dangerous.....	1
Need 5-foot shoulder bike lanes.....	1

PUBLIC MEETING #2 SUMMARY

About the Study

The Houston-Galveston Area Council conducted an access management study for SH 105 to identify transportation improvements that will reduce crashes, improve traffic flow, reduce motorist delay and address multi-modal/land-use context. The study area extends from SH 105 between Loop 336 in Conroe to US 59 in Cleveland, and crosses Montgomery, San Jacinto and Liberty Counties.

Meeting Purpose and Activities

H-GAC hosted a public meeting regarding proposed safety and mobility improvements. The open house meeting was held to introduce the study, show final recommendations and improvements, and receive public feedback. The meeting date, location and time:

Thursday, October 27, 2011
 Austin Elementary School
 14796 Highway 105 East
 Conroe, Texas 77306
 6:00-8:00 p.m.

At the meeting, informative boards were staffed by project team members. Attendees were able to speak with team members and have questions answered. Two sets of large table maps of the study area were displayed and attendees were invited to review the short-, medium- and long-term recommendations. Smaller maps of proposed pedestrian improvements and livable center plans were also available for review. Two display monitors were set up to continuously play a short movie on access management. Questionnaires were provided to collect comments from attendees. Some attendees took extra copies of the questionnaires to distribute to people who were not able to attend the meeting.

The project boards, presentation, sign-in sheets and completed questionnaires are included as attachments to the Public Involvement Report, which is a separate document.

Attendance

A total of 61 people attended the public meeting. The following breakdown categorizes the attendees:

General Public	45
Elected Officials/Steering Committee	8
Project Team	8

PUBLICITY SUMMARY

A variety of methods were used to publicize the meetings. The following is a breakdown of the publicity summary. Copies of all publicity items are included in Attachment A.

Direct Mail

Letters were sent to local elected officials 30 days in advance. Postcards were mailed to local community groups, the Steering Committee, the Stakeholder Committee, schools, churches, emergency services and property owners within the SH 105 study area. Extra postcards were distributed at Austin Elementary School, Security Community Center, Cut and Shoot Town Hall, and other local area businesses. The map on the following page shows the distribution area of the property owners who received the postcard. The complete mailing lists are included on the enclosed CD.

Newspapers

A public meeting notice was printed in the legal section of The Houston Chronicle, 30 days prior to the meeting. Display ads were printed in English and Spanish in the Conroe Courier, Cleveland Advocate, The Greensheet. The display ad was only printed in Spanish in La Voz, the Houston Chronicle's Spanish language publication. A media release was emailed approximately two weeks in advance. An article was published in both Guidry News and Your Houston News.

Newsletters

Notices appeared in H-GAC's Vision and Regional Focus electronic newsletters.

E-notices

An e-notice was emailed to elected officials, the Steering Committee, and individuals from a database of previous meetings.

Social Media

A notice was posted on the H-GAC's website, www.h-gac.com, in the Transportation and Air Quality section and on H-GAC's facebook page.

Signs

TxDOT's portable orange construction signs displayed the meeting information on the day of the meetings at two separate locations, near either end of the study corridor.

QUESTIONNAIRE COMMENTS SUMMARY

Questionnaires were distributed to attendees at the meeting. Some attendees took extra questionnaires for distribution to others who were not at the meeting. A summary of the 19 completed questionnaires received is provided below:

Which category best describes your interest?

Local resident.....	13
Public official.....	5
School official.....	1
Retail business owner.....	1

Of the access management tools presented, which would you like to see used along the corridor?

Improve traffic signal timing/progression.....	10
Left- and right-turn lanes.....	9
Center two-way, left-turn lane.....	8
Four-lane roadway section.....	7
No raised median.....	3
Six-lane roadway section.....	3
New traffic signal installation.....	3
Locate parking to set back further.....	2
Four-lane with a center turn lane.....	2
Center turn lane in Cut and Shoot.....	1
Raised median.....	1

What do you think about the set of short-term recommendations?

No raised median.....	8
No bicycle/pedestrian enhancements.....	6
No raised median accept at churches, schools, and major turns.....	2
Douget Road needs traffic-triggered signal.....	1

Traffic signal at Crystal Forest.....	1
Widen lanes.....	1

What do you think about the set of medium-term recommendations?

No raised median.....	7
No bicycle/pedestrian enhancements.....	5
No driveway consolidation.....	1
Some of the medium-term should be short-term.....	1
No raised median, need center turn lane.....	1
You will acquire land from property owners who do not desire to lose their property.....	1

What do you think about the set of long-term recommendations?

No bicycle/pedestrian enhancements.....	2
More concerned with traffic problems.....	1
Only sidewalks near schools.....	1
It's a consideration.....	1
No sidewalks.....	1
OK.....	1

Do you support these recommendations for pedestrian/bicycle traffic along SH 105?

No.....	11
Yes.....	1

What modifications or additions would you like to see?

Widen SH 105	
Wait for the bicycle/pedestrian enhancements when more businesses are along SH 105	
Place sidewalks only near schools	
Four lanes with center-turn lane only	

Do you have any other general comments on the information presented tonight?

Rethink raised medians with a center-turn only	
Why can't East of Conroe (Hwy 105) be done as West of Conroe?	
No raised medians	
The zero crashes at Walker Road is not true, please recheck sources	
Lower the speed limits	
Add more police patrol	



APPENDIX B

SUMMARY OF SH 105 CORRIDOR SUBDIVISION REGULATIONS

SUMMARY OF SH 105 CORRIDOR

Subdivision regulations for Montgomery, San Jacinto, and Liberty counties are applicable to SH 105 and were reviewed as part of this study. In the absence of zoning controls, these subdivision regulations most directly influence development pattern along the corridor. A summary and comparison of these regulations is provided in the table.

Regulatory Element	San Jacinto	Citation
Extra Territorial Jurisdiction (ETJ)	If parcel is within ETJ of an incorporated city, then it is subject to the regulations of both the city and County.	Part I, Sec. 2.8
Exemptions from Subdivision Regulations	1. The land is used primarily for ag, farm, ranch, timber or wildlife management. 2. The land is being divided among family for family and results in no more than 4 lots. 3. All lots are more than 10 acres and no new streets or public dedications. 4. All lots are being sold to Veterans through the Veterans Land Board Assoc. 5. The land is owned by the state or any of its agencies or school funds unless there are public dedications or if land is subdivided for sale to adjacent private owners. 6. The land is owned by a political jurisdiction of the state, is in a floodplain and is being sold to adjacent owners. 7. Two tracts are created - one for the owner and to be sold for development that would be subject to plat requirements. 8. No public dedications are being made and the lot is being transferred to a previous owner with a plat being required before further development. <i>Items 2, 3 and 4 require lot frontage of at least 50'.</i>	Part I, Sec. 3.1
Water/Wastewater/Sewage	No On-Site Sewage Facility permits will be issued for land subdivided after June 19, 2000, unless it has been subdivided according to the Subdivision Regulations and the San Jacinto County On-Site Sewage Facility Rules or is exempt from subdivision under state law. Subdivision Regulations include a reference to Texas Administrative Code [Title 30, Part I, Ch. 285, Subchapter A, Rule §285.4 (a)]. Subdivisions served by a public water supply and an OSSF must have a minimum lot size of 1/2 acre. Subdivisions with individual water systems (not served by public water supply) must have a minimum lot size of 1 acre.	Part I, Sec. 2.10 Appendix 6, Sec. 8 Texas Administrative Code [Title 30, Part I, Ch. 285, Subchapter A, Rule §285.4 (a)]
Streets		
General provisions	Must be paved and dedicated. Private streets permitted only by variance. Neighborhood Subdivision Streets (those serving 100 lots or less) must connect to a State or Federal Highway or a County Feeder Road.	Part I, Sec. 6.1 Part I, Sec. 6.5
R.O.W. width	Neighborhood: 50' Local: 60' Collector: 70'	Part II, Sec. 2.5
Number of lanes	Neighborhood: 2 Local: 2 Collector: 2	Part II, Sec. 2.5
Min. lot frontage	Cul-de-sac bulbs: 25' Neighborhood: 50' Local: 50' Collector: 150' County Feeder Roads: 150'	Part I, Sec.6.5.1 Part I, Sec.6.5.2 Part II, Sec. 2.5
Min. driveway spacing	Neighborhood: 50' Local: 50' Collector: 150'	Part II, Sec. 2.5
Pavement width	NONE NOTED	

Regulatory Element	San Jacinto	Citation
Lots		
Flag lots	Generally not permitted, unless Commissioners Court approves the lot after review and consideration.	Part I, Sec. 6.4
Min. lot width	NONE NOTED	
Min. lot depth	NONE NOTED	
Min. setback	NONE NOTED	
Min. lot area	Subdivisions served by a public water supply and an OSSF: 1/2 acre Subdivisions with individual water systems: 1 acre This reflects the Texas Administrative Code [Title 30, Part I, Ch. 285, Subchapter A, Rule §285.4 (a) regarding On-Site Sewage Facilities.	Appendix 6, Sec. 8
Exemptions to bulk regulations	NONE NOTED	
Interior Roads - Manufactured Rental Home Parks	Must provide direct access to 60' wide public road Parks with more than 80 spaces must have two points of access. Minimum pavement width of 24'.	Appendix 5, Site Design and Development Standards
Max. block length	NONE NOTED	
Floodplain development	Development in the floodplain requires a permit and compliance with standards for floodplain construction.	Appendix 3, Article 3B
Other Applicable Development Regulations	No.	Ashley, Permit Dept., San Jacinto County 5/19/11, 9:55 a.m. CST

SUBDIVISION REGULATIONS (CONTINUED)

Regulatory Element	Liberty	Citation
Extra Territorial Jurisdiction (ETJ)	If parcel is within ETJ of an incorporated city, then it is subject to the regulations of both the city and County.	Sec. 2.9
Exemptions from Subdivision Regulations	<p>1. The land is used primarily for ag, farm, ranch, timber or wildlife management.</p> <p>2. The land is being divided among family for family and results in no more than 4 lots.</p> <p>3. All lots are more than 10 acres and no new streets or public dedications.</p> <p>4. All lots are being sold to Veterans through the Veterans Land Board Assoc. Lots are subject to driveway spacing requirements.</p> <p>5. The land is owned by the state or any of its agencies or school funds unless there are public dedications or if land is subdivided for sale to adjacent private owners.</p> <p>6. The land is owned by a political jurisdiction of the state, is in a floodplain and is being sold to adjacent owners.</p> <p>7. Two tracts are created - one for the owner and to be sold for development that would be subject to plat requirements.</p> <p>8. No public dedications are being made and the lot is being transferred to a previous owner with a plat being required before further development.</p> <p><i>Items 2 and 3 require lot frontage of at least 50'.</i></p>	Sec. 3.1
Water/Wastewater/Sewage	<p>No On-Site Sewage Facility permits will be issued for land subdivided after February 10, 2000, unless it has been subdivided according to the Subdivision Regulations and the Liberty County On-Site Sewage Facility Rules or is exempt from subdivision under state law.</p> <p>Subdivision Regulations include a reference to Texas Administrative Code [Title 30, Part I, Ch. 285, Subchapter A, Rule §285.4 (a)]: Subdivisions served by a public water supply and an OSSF must have a minimum lot size of 1/2 acre. Subdivisions with individual water systems (not served by public water supply) must have a minimum lot size of 1 acre.</p>	<p>Sec. 2.10</p> <p>Texas Administrative Code [Title 30, Part I, Ch. 285, Subchapter A, Rule §285.4 (a)]</p>
Streets		
General provisions	Must be paved and dedicated. Private streets permitted only by variance. Neighborhood Subdivision Streets (those serving 100 lots or less) must connect to a State or Federal Highway or a County Feeder Road.	<p>Sec. 6.1</p> <p>Sec. 6.5</p>
R.O.W. width	<p>Open Ditches: Main or Arterials: 75' Collector or Laterals: 60' Single-family residential streets: 60' with 50' radius cul-de-sac and 600' length</p> <p>Curbs and Gutter Arterials: 75' Collectors: 60' Single-family residential streets: 60' with 50' radius cul-de-sac and 600' length</p> <p>Alleys: 20'</p>	<p>Sec. 4.1.3(a)</p> <p>Sec. 4.1.1</p>
Number of lanes	NONE NOTED	
Min. lot frontage	<p>Cul-de-sac bulbs: 25'</p> <p>Neighborhood: 50'</p> <p>County Feeder Roads: 150'</p>	<p>Sec.6.5.1</p> <p>Sec.6.5.2</p>
Min. driveway spacing	NONE NOTED	
Pavement width	NONE NOTED	

Regulatory Element	Liberty	Citation
Lots		
Flag lots	Generally not permitted, unless Commissioners Court approves the lot after review and consideration.	Sec. 6.4
Min. lot width	50'	Sec. 4.1.1
Min. lot depth	130'	Sec. 4.1.1
Min. setback	25'	Sec. 4.1.1
Min. lot area	<p>NONE NOTED</p> <p>However, per the Texas Administrative Code [Title 30, Part I, Ch. 285, Subchapter A, Rule §285.4 (a) regarding On-Site Sewage Facilities: 1 acre for lots served by well and septic and 1/2 acre central water and septic.</p>	
Exemptions to bulk regulations	Subdivisions with curb and gutter can have a zero lot line design, minimum lot width of 45' and 110' depth	Sec. 4.1.1
Interior Roads - Manufactured Rental Home Parks	NONE NOTED	
Max. block length	1,400'	Sec. 4.1.1
Floodplain development	Development and construction in special flood hazard areas requires a permit and compliance with standards for floodplain construction.	Appendix 4, Secs. A, C and D
Other Applicable Development Regulations	No.	Leslie, Engineering Dept. Liberty County 5/20/11, 10:21 a.m. CST

SUBDIVISION REGULATIONS (CONTINUED)

Regulatory Element	Montgomery	Citation
Extra Territorial Jurisdiction (ETJ)	NONE NOTED	
Exemptions from Subdivision Regulations	NONE NOTED	
Water/Wastewater/Sewage	Cluster developments, residential condominiums, multi-family residential, apartments and mobile home parks should be served by sanitary sewer. Mobile home parks should be served by a community water supply. While not referenced in Subdivision Regulations, Texas Administrative Code [Title 30, Part 1, Ch. 285, Subchapter A, Rule §285.4 (a)] applies: Subdivisions served by a public water supply and an OSSF must have a minimum lot size of 1/2 acre. Subdivisions with individual water systems (not served by public water supply) must have a minimum lot size of 1 acre.	Subdivision Guidelines and Recommendations: Sec. 2-II-J-4 Texas Administrative Code [Title 30, Part 1, Ch. 285, Subchapter A, Rule §285.4 (a)]
Streets General provisions	NONE NOTED	
R.O.W. width	Commercial/Industrial subdivisions: 70', 60' if concrete curb and gutter Minor streets, loop roads and cul-de-sacs less than 600' length: 50' Collector streets: 60', 50' if concrete curb and gutter Major thoroughfares: 100'-120' according to typical section in Major Thoroughfare Plan Alleys: 20' Cul-de-sac bulbs: 50' single-family and 60' other uses	Subdivision Guidelines and Recommendations: Sec. 2-II-B Sec. 2-II-F
Number of lanes	NONE NOTED	
Min. lot frontage	NONE NOTED	
Min. driveway spacing	NONE NOTED	
Pavement width	Residential streets, major thoroughfares, ranchettes 10 acres or more and mobile homes 10 acres or more: Minimum pavement width = 18' Commercial and heavy industrial streets: Minimum pavement width = 22'	Sec. 3-II-B-1

Regulatory Element	Montgomery	Citation
Lots		
Flag lots	NONE NOTED	
Min. lot width	Single-family residential: 50', 30' for pie-shaped lots, 60' corner lots, 75' corner lots on major thoroughfare Townhouses: 20', 30' for end or corner units Cluster developments: 25' Mobile home park lots: 40' for double-wide mobile homes; 25' for single-wide mobile homes	Subdivision Guidelines and Recommendations: Sec. 2-II-J-4
Min. lot depth	Single-family residential: 100', 110' for lots on major thoroughfare	Subdivision Guidelines and Recommendations: Sec. 2-II-J-4
Min. setback	Single-family and two-family dwellings: 20' front, 10' exterior side; 5' interior side for main building, 3' for secondary buildings Apartments or multi-family developments: 20' from any street Townhouse: 20' front	Subdivision Guidelines and Recommendations: Sec. 2-II-J-4
Min. lot area	Cluster developments and townhouses: 1,400 s.f. Multi-family and Apartments: 6,000 s.f., plus 1,500 s.f. for each dwelling unit in excess of two None other noted; however, per the Texas Administrative Code [Title 30, Part 1, Ch. 285, Subchapter A, Rule §285.4 (a)] regarding On-Site Sewage Facilities: 1 acre for lots served by well and septic and 1/2 acre central water and septic.	Subdivision Guidelines and Recommendations: Sec. 2-II-J-4
Exemptions to bulk regulations	NONE NOTED	
Interior Roads - Manufactured Rental Home Parks	NONE NOTED	
Max. block length	Single-family detached lots less than 5,000 s.f.: 1,400' Single-family detached lots greater than 5,000 s.f.: 2,000' Along major thoroughfares: 2,000'	Subdivision Guidelines and Recommendations: Sec. 2-II-I
Floodplain development	Lots shall only be permitted in the floodplain after all other viable options are exhausted. For those lots platted in the floodplain the lowest habitable floor elevation must be 1' above 100-year floodplain elevation. No structures are permitted in the 100-year floodway.	Subdivision Guidelines and Recommendations: Sec. 2-II-B
Other Applicable Development Regulations	Subdivision Guidelines and Recommendations: S.O.P. / Required Drainage Criteria Manual: If requirements are stricter than Sub. Regs, it supercedes the Sub. Regs.	Cristy Weldon Engineer, Montgomery County 5/24/11, 1:50 pm CST

SUBDIVISION REGULATIONS (CONTINUED)

Regulatory Element	Cleveland	Citation
Extra Territorial Jurisdiction (ETJ)	NONE NOTED	
Exemptions from Subdivision Regulations	NONE NOTED	
Water/Wastewater/Sewage	<p>Permits for septic systems will only be issued when a final plat for the lot has been approved and recorded or when an existing lot complies with the subdivision regulations.</p> <p>The city will not supply water or sewer service to any subdivision until a final plat for has been approved and recorded or until the subdivision regulations have been fully complied with.</p> <p>While not referenced in Subdivision Regulations, Texas Administrative Code [Title 30, Part I, Ch. 285, Subchapter A, Rule §285.4 (a)] applies: Subdivisions served by a public water supply and an OSSF must have a minimum lot size of 1/2 acre. Subdivisions with individual water systems (not served by public water supply) must have a minimum lot size of 1 acre.</p>	<p>Municipal Code, Subdivision Regulations: Sec.106-4(a) and 106-4(d)</p> <p>Texas Administrative Code [Title 30, Part I, Ch. 285, Subchapter A, Rule §285.4 (a)]</p>
Streets		
General provisions	<p>Street intersections shall be as near to 90 degrees as practical. Cul-de-sacs shall be no longer than 500'.</p> <p>Subdivisions with frontage onto an arterial require a marginal-access street (i.e. frontage road).</p> <p>Sidewalks are not required.</p>	<p>Municipal Code, Subdivision Regulations: Sec.106-10(2), 106-(5)</p>
R.O.W. width	<p>Cul-de-sac bulbs: 100' in residential areas; 200' in commercial/industrial</p> <p>Alleys: 20'</p>	<p>Municipal Code, Subdivision Regulations: Sec.106-10(2), 106-(3)</p>
Number of lanes	NONE NOTED	
Min. lot frontage	<p>Lots must front onto a public street. Irregular shaped lots must have at least 50' of frontage.</p>	<p>Municipal Code, Subdivision Regulations: Sec.106-(13)</p>
Min. driveway spacing	NONE NOTED	
Pavement width	<p>Alleys: 20' in commercial / industrial; 14' in residential areas</p>	<p>Municipal Code, Subdivision Regulations: Sec.106-(3)</p>

Regulatory Element	Cleveland	Citation
Lots		
Flag lots	NONE NOTED	
Min. lot width	<p>50' if served by sewer 75' if not served by sewer 100' corner lots</p>	<p>Municipal Code, Subdivision Regulations: Sec.106-(13)</p>
Min. lot depth	<p>120' if served by sewer 200' if not served by sewer</p>	<p>Municipal Code, Subdivision Regulations: Sec.106-(13)</p>
Min. setback	<p>Front yard: 25'; corner lots: must have a 15' sideyard setback unless it is a "key" lot, in which case 25' is required; rear yard: 25% of lot depth or 40' maximum; sideyard: the greater of 10' or 10% of lot width.</p>	<p>Municipal Code, Subdivision Regulations: Sec.106-(13)</p>
Min. lot area	<p>6,000 s.f. if served by sewer 15,000 s.f. if not served by sewer</p> <p>[This appears to conflict with the Texas Administrative Code [Title 30, Part I, Ch. 285, Subchapter A, Rule §285.4 (a)] regarding On-Site Sewage Facilities, which requires a minimum lot area of 1/2 acre (21,780 s.f.) if a parcel is served by central water and septic.]</p>	<p>Municipal Code, Subdivision Regulations: Sec.106-(13)</p>
Exemptions to bulk regulations	NONE NOTED	
Interior Roads - Manufactured Rental Home Parks	NONE NOTED	
Max. block length	<p>1200' maximum; 200' minimum</p>	<p>Municipal Code, Subdivision Regulations: Sec.106-(11)</p>
Floodplain development	NONE NOTED	
Other Applicable Development Regulations	NONE NOTED	

APPENDIX C

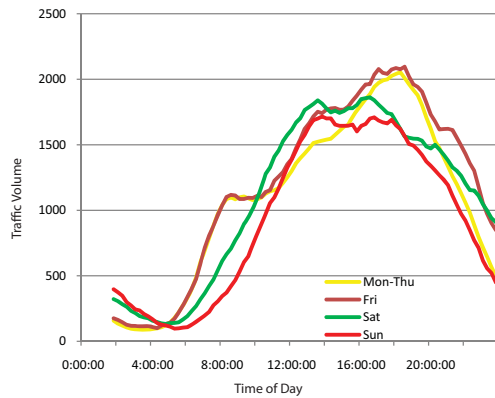
EXISTING (2011) TRAFFIC COUNT DATA

SEVEN-DAY TRAFFIC COUNTS SUMMARY

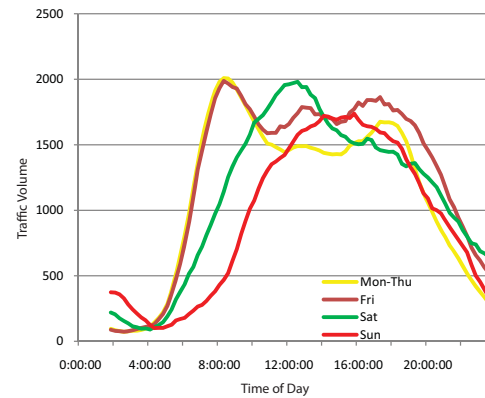
EB - Eastbound, WB - Westbound

24-hour traffic counts were conducted for seven consecutive days at various locations along SH 105. This data is summarized in the following charts for each location by day of the week and time of day. For each location, traffic volumes are summarized by direction and then totaled for both directions.

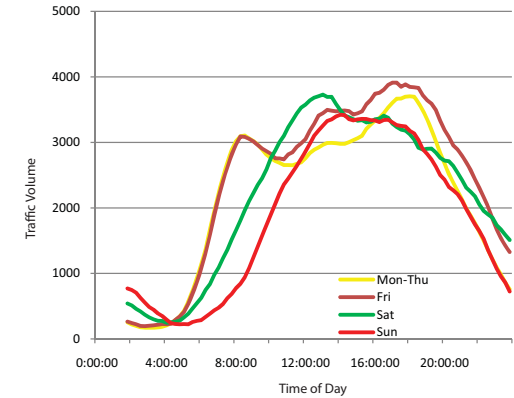
SH 105 - EB East of Loop 336



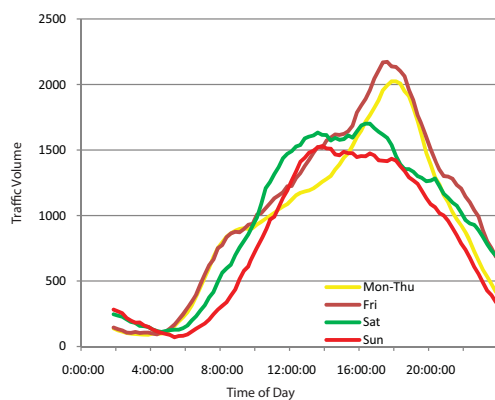
SH 105 - WB East of Loop 336



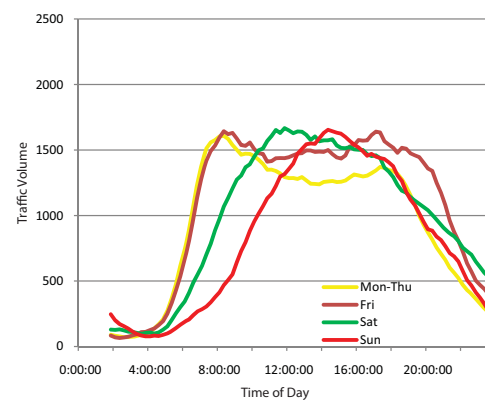
Total SH 105 East of Loop 336



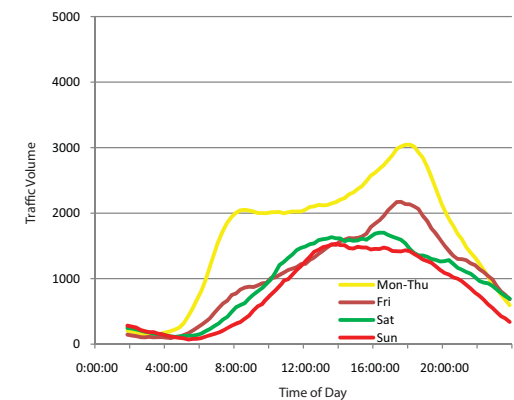
SH 105 - EB East of FM 1485



SH 105 - WB East of FM 1485



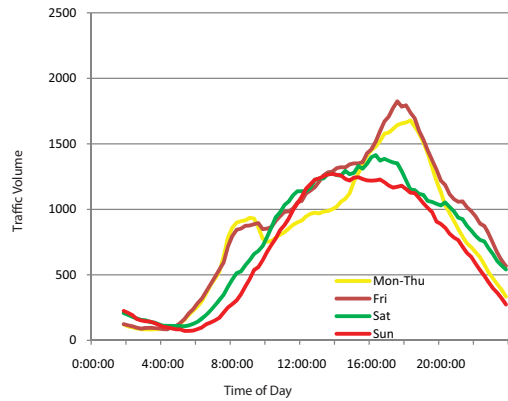
Total SH 105 East of FM 1485



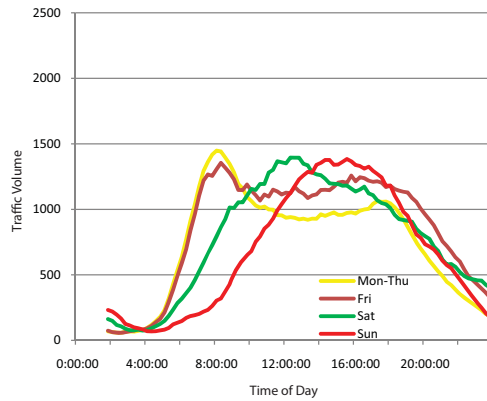
SEVEN-DAY TRAFFIC COUNTS SUMMARY (CONTINUED)

EB - Eastbound, WB - Westbound

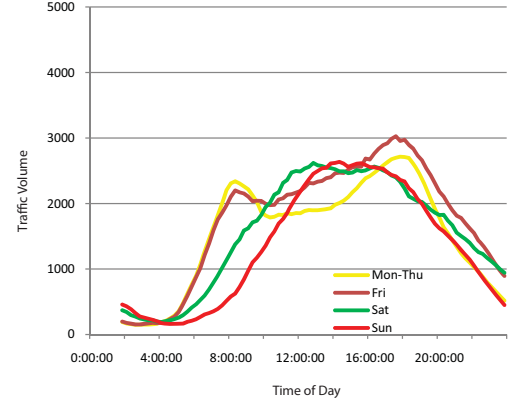
SH 105 - EB between Austin Elementary School Entrance and Exit Driveways



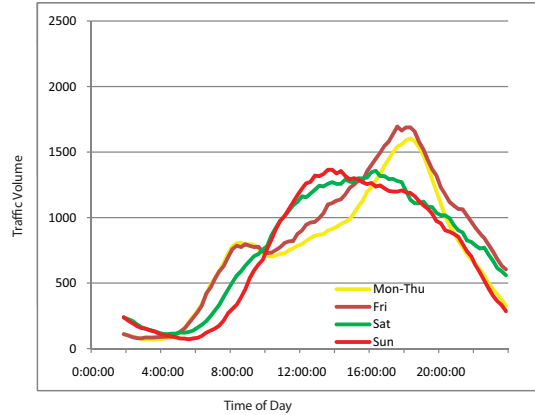
SH 105 - WB between Austin Elementary School Entrance and Exit Driveways



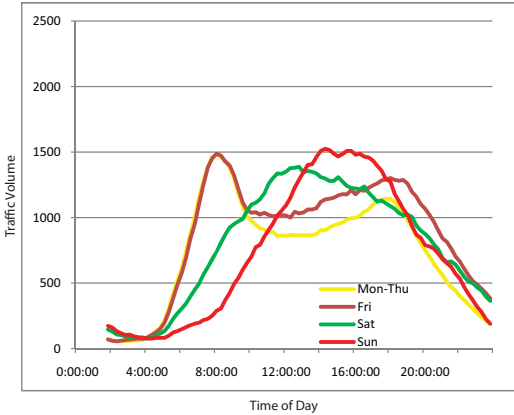
Total SH 105 between Austin Elementary School Entrance and Exit Driveways



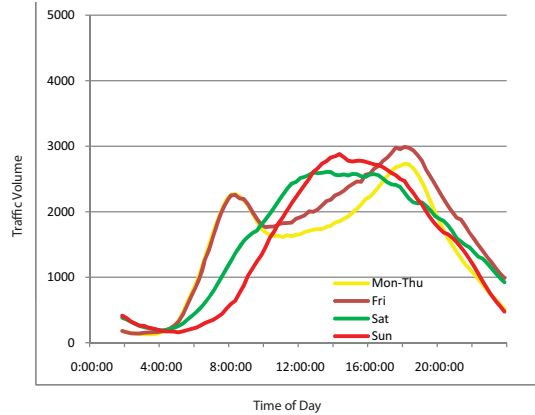
SH 105 - EB East of FM 1484



SH 105 - WB East of FM 1484



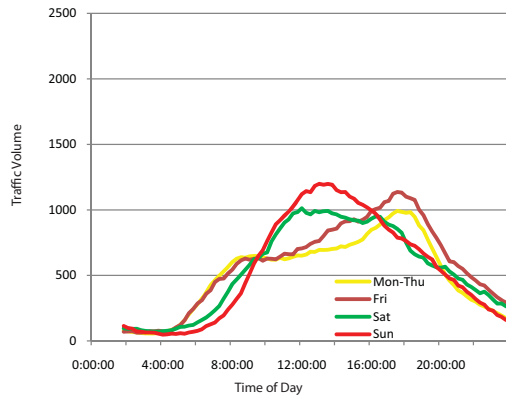
Total SH 105 East of FM 1484



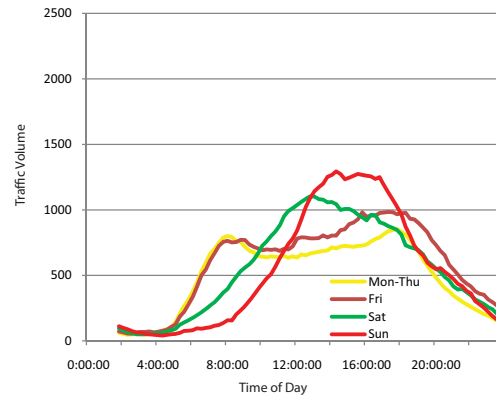
SEVEN-DAY TRAFFIC COUNTS SUMMARY (CONTINUED)

EB - Eastbound, WB - Westbound

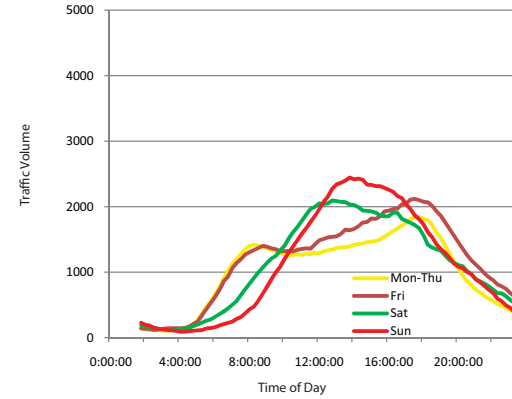
SH 105 - EB East of Walker Road



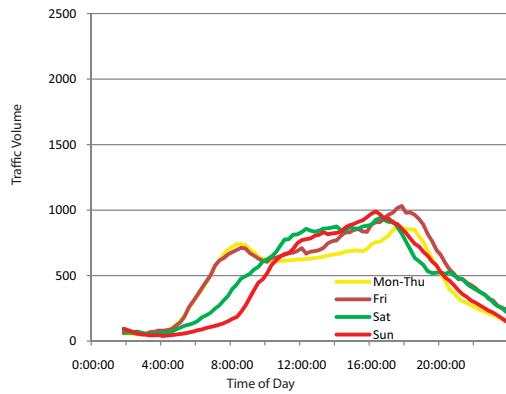
SH 105 - WB East of Walker Road



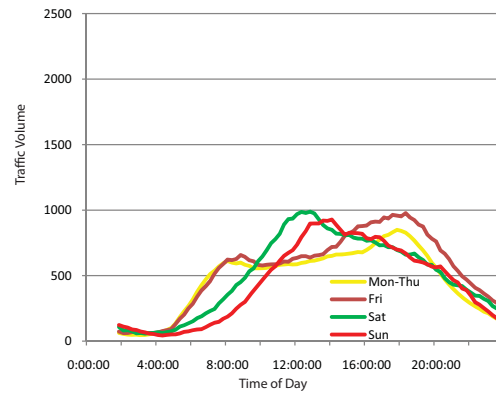
Total SH 105 East of Walker Road



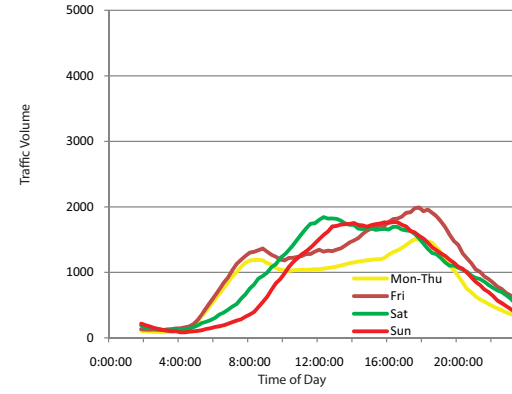
SH 105 - EB East of Lee Turner Road



SH 105 - WB East of Lee Turner Road



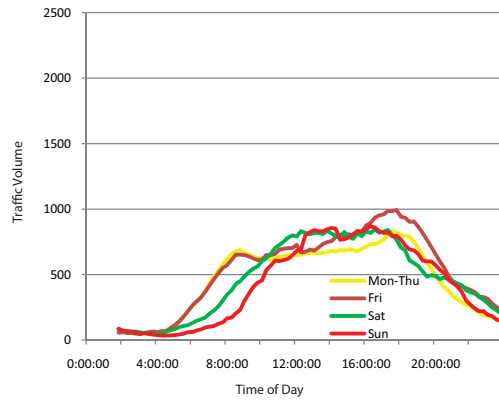
Total SH 105 East of Lee Turner Road



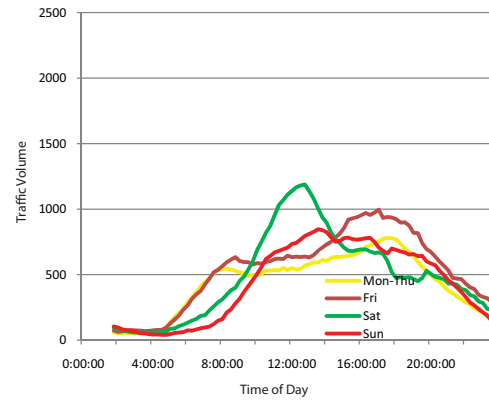
SEVEN-DAY TRAFFIC COUNTS SUMMARY (CONTINUED)

EB - Eastbound, WB - Westbound

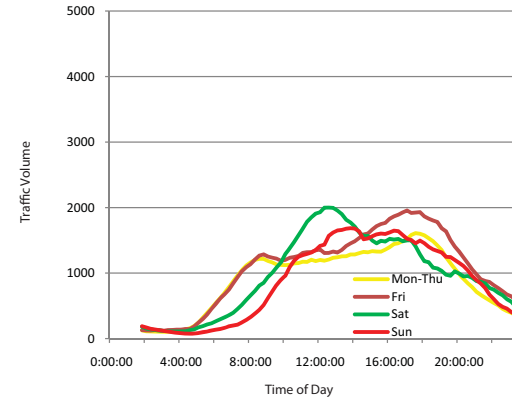
SH 105 - EB West of FM 1725



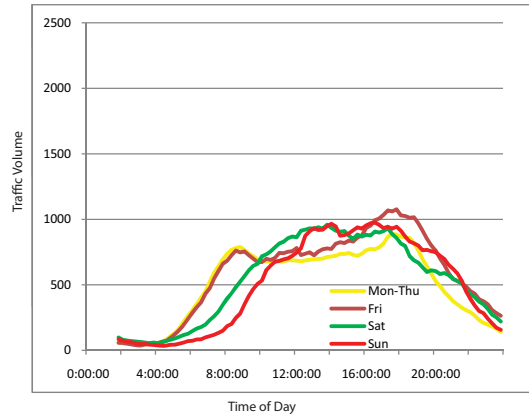
SH 105 - WB West of FM 1725



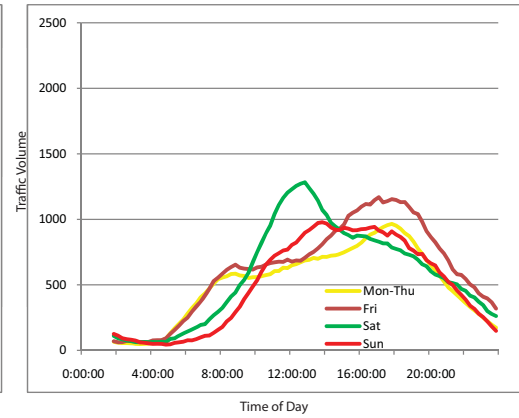
Total SH 105 West of FM 1725



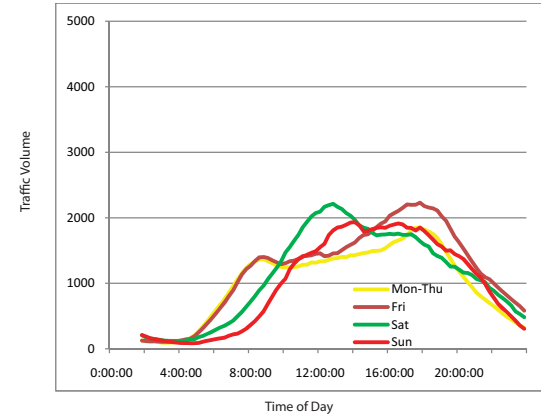
SH 105 - EB West of US 59



SH 105 - WB West of West of US 59



Total SH 105 West of US 59



APPENDIX D

SYNCHRO/SIMTRAFFIC MODEL DEVELOPMENT

The development of an access management plan for SH 105 involves the evaluation and analysis of the existing transportation system and the proposed recommendations. The analysis methodology and analytical tools used to evaluate the transportation system are described in this section.

ANALYSIS METHODOLOGY

The study area was modeled using Synchro/SimTraffic. Synchro is a macroscopic simulation software developed by Trafficware® for capacity analysis of intersections that are either isolated or part of a network, and includes an evaluation of delay and queues. Synchro also has the capability of optimizing traffic signals, thereby allowing the development of traffic signal timing to accommodate roadway and intersection reconfigurations evaluated as part of this traffic study. SimTraffic, the companion visualization software, enables microscopic simulation of the roadway network developed in SYNCHRO.

Capacity analyses were conducted for study area intersections to evaluate existing and projected traffic operating conditions. The Highway Capacity Manual defines capacity at an intersection as the maximum hourly rate at which vehicles can reasonably be expected to pass through the intersection under prevailing traffic roadway and signalization conditions. The primary Measures of Effectiveness (MOEs) used in evaluating the traffic impacts for the proposed hotel development were peak hour intersection control delay (measured in units of seconds per vehicle) and level-of-service (LOS).

Control delay is defined as that component of total delay caused by decelerating and accelerating at a traffic signal or stop sign. Level-of-Service (LOS) is a qualitative measure of operating conditions at an intersection based on control delay. LOS is given a letter designation from A to

F, where LOS A represents free-flow conditions and LOS F represents heavy congestion.

DATA SOURCES

Data for simulation model input were obtained as follows:

- Background aerials used in building the scaled network were obtained from Houston-Galveston Area Council's (H-GAC) digital aerial imagery files.
- Traffic signal timings for study area intersections were obtained from Texas Department of Transportation (TxDOT).
- Traffic counts in the study area were conducted by CJ Hensch and Wilbur Smith Associates.

MODEL INPUTS

To simulate real-life traffic conditions, the model requires very detailed data inputs. This section describes the various inputs that were utilized to develop the Synchro/SimTraffic model for the current project.

LANE AND GEOMETRIC INFORMATION

Several field trips were conducted to document the roadway geometric and operational details such as speed limits, number of lanes, left-turn and right-turn lanes. Aerial imagery obtained from HGAC was scaled and used as a template to develop the existing study area roadway network. Lane and geometric information that was input in the software includes roadway speed limit, number of lanes, lane widths, turn bay storage lengths and number of storage lanes.

Traffic Volumes and Composition

Traffic volume information input in the simulation software includes peak hour intersection turning movement counts, and truck percentages. Peak hour intersection turning movement counts and 24-hour counts for the study area were used as the basis for developing traffic volumes that were coded in the

simulation model. During the typical weekday, it was estimated that heavy vehicle percentage on SH 105 ranges between eight percent and 10 percent.

Intersection Traffic Control

All the signalized intersections along SH 105 in the study area along with critical minor un-signalized intersections and driveways were modeled in the simulation software. As mentioned previously, traffic signal timings for study area intersections were obtained from TxDOT.

Model Calibration and Validation

Calibration is a necessary process to ensure that traffic conditions in the real world are sufficiently replicated by the simulation model. Synchro/SimTraffic is a complex mathematical model with several parameters that can be adjusted to match behavior in the real world. Model parameters in Synchro/SimTraffic can be classified as following:

- Vehicle parameters
- Driver parameters

Driver parameters directly affect driving behavior for vehicles in the model. Vehicle parameters describe attributes associated with each vehicle type modeled such as vehicle dimensions, occupancy, acceleration and deceleration profiles. Some of the parameters affect the models' performance on a global scale while others have a local effect.

Vehicle parameters that can be modified in Synchro/SimTraffic include length and width of vehicles, acceleration rate and maximum speed of vehicles. The default parameters provided in Synchro/SimTraffic are acceptable for the study area simulation and are not modified during the calibration process.

Driver parameters can be used to adjust the driving behavior of the vehicles in the simulation model from being most conservative to most aggressive. The driver parameters that can be modified in Synchro/SimTraffic

include Yellow Deceleration Rate (maximum deceleration rate a driver is willing to use when faced with a yellow light), Speed Factor (maximum speed of a driver), Headways (amount of time between vehicles drivers try to maintain), etc. The driver parameters were modified from the default values provided in Synchro/SimTraffic till a realistic driver behavior was observed for the SH 105 study area.

After the calibration process was completed, the model was run multiple times and inspected visually to ensure expected operation of network elements. Analysis output from the Synchro/SimTraffic model was obtained after running the model for one hour representing the peak hour. Average travel time along SH 105 in the study area was calibrated to ensure real world travel behavior.

Travel time data were collected on SH 105 in the study area during the peak analysis periods. This data was used to assess the accuracy of the Synchro/SimTraffic model. Travel time output provided by the model was compared to real-world travel times and, if necessary, data input parameters were adjusted to reflect more real-world conditions. Finally, field observations were conducted and the model was calibrated based on field observations of queue lengths.

Table 1 and **Table 2** compare the travel time results from Synchro/SimTraffic model and the field observations for a typical weekday PM and weekend peak hour. The results show that the travel time along SH 105 in the study area is comparable to the output from the simulation model.

Table 1: Travel Time Results - Existing Weekday PM Peak Hour

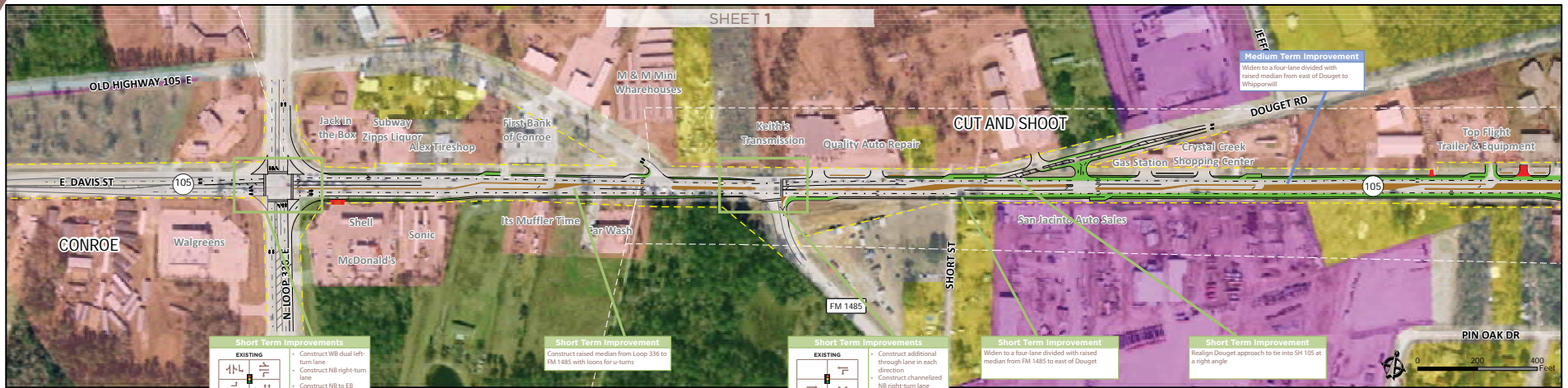
Direction	SH 105		Travel Time		
	From	To	Field Observation	Synchro/SimTraffic	
Eastbound	Loop 336	FM 1485	0:01:05	0:00:57	
	FM 1485	Whipporwill Road	0:01:18	0:01:16	
	Whipporwill Road	Crystal Forest Drive	0:00:28	0:00:33	
	Crystal Forest Drive	Millmac Road	0:01:17	0:01:16	
	Millmac Road	Willis Waukegan Road	0:01:32	0:01:27	
	Willis Waukegan Road	FM 1484	0:01:05	0:00:56	
	FM 1484	Crockett Martin Road	0:00:44	0:01:02	
	Crockett Martin Road	Walker Road	0:02:32	0:02:32	
	Walker Road	Fostoria Road	0:07:53	0:08:17	
	Fostoria Road	FM 1725	0:03:31	0:03:17	
	FM 1725	US 59 NBFR	0:01:37	0:01:30	
		Total		0:23:02	0:23:03
	Westbound	US 59 NBFR	FM 1725	0:01:15	0:01:08
FM 1725		Fostoria Road	0:03:28	0:03:17	
Fostoria Road		Walker Road	0:07:56	0:08:10	
Walker Road		Crockett Martin Road	0:02:29	0:02:33	
Crockett Martin Road		FM 1484	0:01:00	0:00:56	
FM 1484		Willis Waukegan Road	0:00:55	0:00:53	
Willis Waukegan Road		Millmac Road	0:01:32	0:01:30	
Millmac Road		Crystal Forest Drive	0:01:11	0:01:14	
Crystal Forest Drive		Whipporwill Road	0:00:34	0:00:31	
Whipporwill Road		FM 1485	0:01:27	0:01:13	
FM 1485		Loop 336	0:01:01	0:01:05	
		Total		0:22:47	0:22:29

Table 2: Travel Time Results - Existing Weekend Peak Hour

Direction	SH 105		Travel Time		
	From	To	Field Observation	Synchro/SimTraffic	
Eastbound	Loop 336	FM 1485	0:00:39	0:00:40	
	FM 1485	Whipporwill Road	0:00:59	0:01:11	
	Whipporwill Road	Crystal Forest Drive	0:00:25	0:00:29	
	Crystal Forest Drive	Millmac Road	0:01:11	0:01:13	
	Millmac Road	Willis Waukegan Road	0:01:42	0:01:25	
	Willis Waukegan Road	FM 1484	0:00:57	0:00:54	
	FM 1484	Crockett Martin Road	0:00:38	0:00:57	
	Crockett Martin Road	Walker Road	0:02:30	0:02:36	
	Walker Road	Fostoria Road	0:07:54	0:08:09	
	Fostoria Road	FM 1725	0:03:40	0:03:16	
	FM 1725	US 59 NBFR	0:01:34	0:01:22	
		Total		0:22:10	0:22:13
	Westbound	US 59 NBFR	FM 1725	0:00:57	0:01:04
FM 1725		Fostoria Road	0:03:45	0:03:17	
Fostoria Road		Walker Road	0:07:55	0:07:57	
Walker Road		Crockett Martin Road	0:02:51	0:02:38	
Crockett Martin Road		FM 1484	0:00:44	0:00:49	
FM 1484		Willis Waukegan Road	0:00:56	0:00:52	
Willis Waukegan Road		Millmac Road	0:01:28	0:01:31	
Millmac Road		Crystal Forest Drive	0:01:12	0:01:14	
Crystal Forest Drive		Whipporwill Road	0:00:30	0:00:35	
Whipporwill Road		FM 1485	0:01:12	0:01:14	
FM 1485		Loop 336	0:00:29	0:00:53	
		Total		0:22:00	0:22:05

APPENDIX E

CONCEPTUAL LAYOUTS FOR RECOMMENDED IMPROVEMENTS



Short Term Improvements

EXISTING	<ul style="list-style-type: none"> Construct WB dual left-turn lane Construct NB right-turn lane Construct NB to EB acceleration lane Add pedestrian crosswalks Optimize traffic signal timing
PROPOSED	<ul style="list-style-type: none"> Add signal interconnect between Loop 336 and FM 1485

Short Term Improvement

<ul style="list-style-type: none"> Construct raised median from Loop 336 to FM 1485 with loons for u-turns

Short Term Improvements

EXISTING	<ul style="list-style-type: none"> Construct additional through lane in each direction Construct channelized NB right-turn lane Optimize traffic signal timing Add pedestrian crosswalks Add signal interconnect between Loop 336 and FM 1485
PROPOSED	

Short Term Improvement

<ul style="list-style-type: none"> Widen to a four-lane divided with raised median from FM 1485 to east of Douget
--

Short Term Improvement

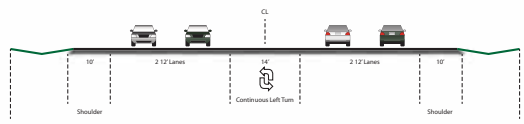
<ul style="list-style-type: none"> Realign Douget approach to tie into SH 105 as a right angle

Typical Cross Sections

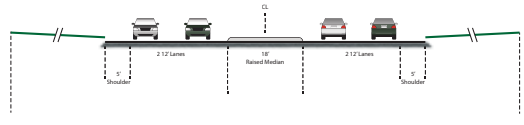
- SHORT TERM IMPROVEMENTS**
- Traffic Signal (Proposed)
 - Raised Median/Curb
 - Loon
- MEDIUM TERM IMPROVEMENTS**
- Driveway Closure
 - Reconfigure Driveway

- LEGEND**
- Civic
 - Commercial
 - Farm Ranch
 - Residential
 - Undetermined
 - Vacant
 - Traffic Signal (Existing)
 - Existing Lane Marking
 - Proposed Lane Marking
 - Existing Right-of-Way
 - Existing Lane Configuration
 - Proposed Lane Configuration
 - New Pavement
 - Funded TxDOT Improvement

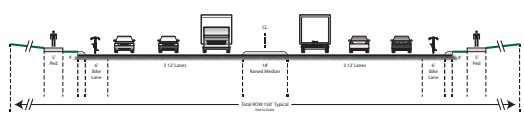
Existing Section
(Loop 336 - FM 1485)



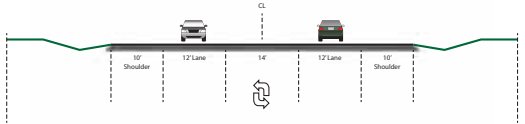
Proposed Short Term
(Loop 336 - East of Douget)



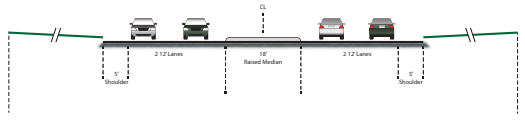
Proposed Long Term
(Loop 336 - Willis Waukegan)



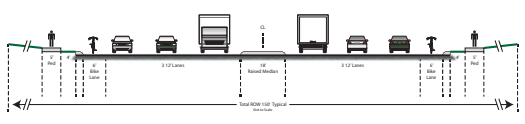
Existing Section
(FM 1485 - Whipperwill)

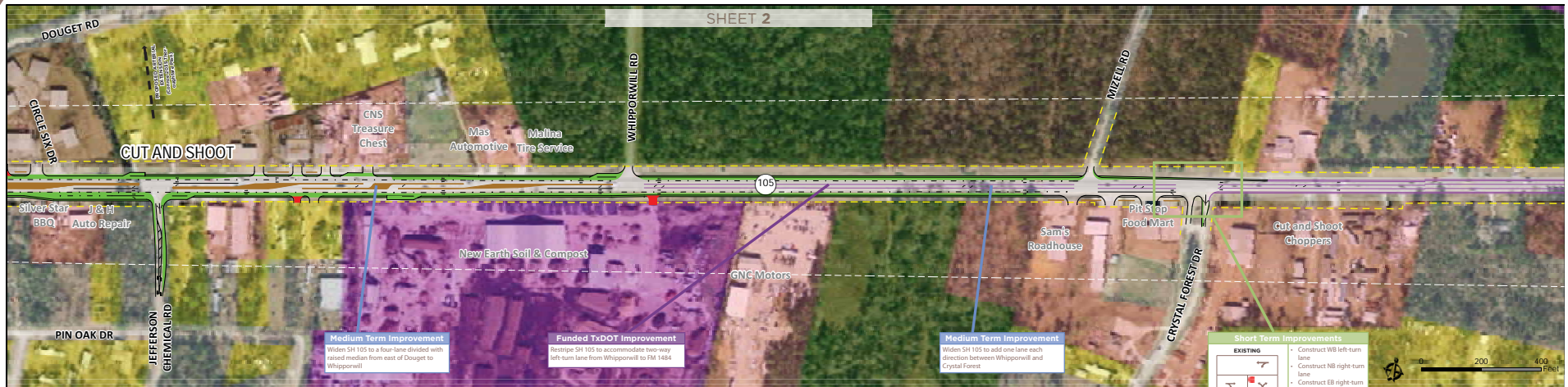


Proposed Medium Term
(East of Douget - Whipperwill)



Proposed Long Term
(Loop 336 - Willis Waukegan)

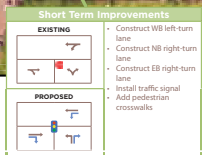




Medium Term Improvement
Widen SH 105 to a four-lane divided with raised median from east of Douget to Whipporwill.

Funded TxDOT Improvement
Restripe SH 105 to accommodate two-way left-turn lane from Whipporwill to FM 1484.

Medium Term Improvement
Widen SH 105 to add one lane each direction between Whipporwill and Crystal Forest.



Long Term Improvement
Widen SH 105 to a six-lane divided curb and gutter (with raised median) from Loop 336 to Willis Waukegan.

Typical Cross Sections

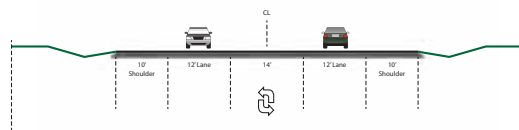
SHORT TERM IMPROVEMENTS

- Traffic Signal (Proposed)
 - Raised Median/Curb
 - Loon
- MEDIUM TERM IMPROVEMENTS**
- Driveway Closure
 - Reconfigure Driveway

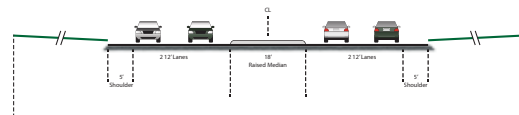
LEGEND

- | | |
|--------------|-----------------------------|
| Civic | Traffic Signal (Existing) |
| Commercial | Existing Lane Marking |
| Farm Ranch | Proposed Lane Marking |
| Residential | Existing Right-of-Way |
| Undetermined | Existing Lane Configuration |
| Vacant | Proposed Lane Configuration |
| | New Pavement |
| | Funded TxDOT Improvement |

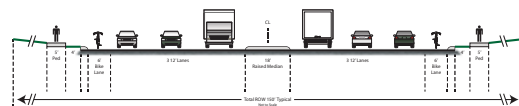
Existing Section
(FM 1485 - Whipporwill)



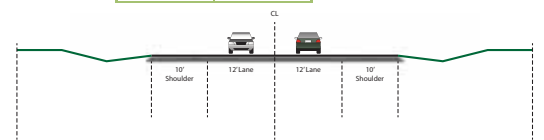
Proposed Medium Term
(East of Douget - Whipporwill)



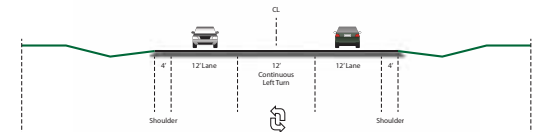
Proposed Long Term
(Loop 336 - Willis Waukegan)



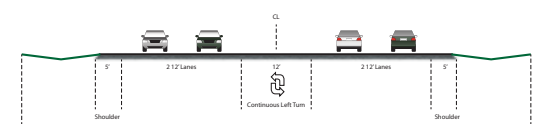
Existing
(Whipporwill - US 59)



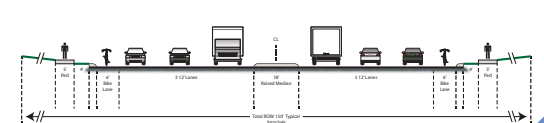
Funded TxDOT Improvement
(Whipporwill - FM 1484)



Proposed Medium Term
(Whipporwill - Crystal Forest)



Proposed Long Term
(Loop 336 - Willis Waukegan)



SHEET 3



Funded TxDOT Improvement
Restripe SH 105 to accommodate two-way left-turn lane from Whipporwill to FM 1484

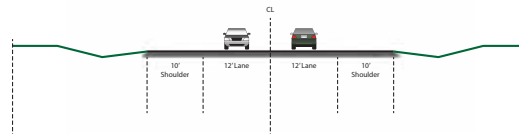
Short Term Improvement
Construct WB right-turn lane at Millmac

Long Term Improvement
Widen SH 105 to a six-lane divided curb and gutter (with raised median) from Loop 336 to Willis Waukegan

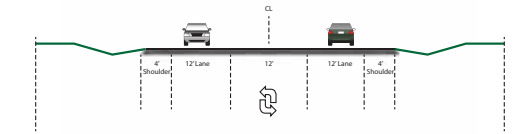
Typical Cross Sections

- SHORT TERM IMPROVEMENTS**
- Traffic Signal (Proposed)
 - Raised Median/Curb
 - Loon
- MEDIUM TERM IMPROVEMENTS**
- Driveway Closure
 - Reconfigure Driveway
- LEGEND**
- Civic
 - Commercial
 - Farm Ranch
 - Residential
 - Undetermined
 - Vacant
 - Traffic Signal (Existing)
 - Existing Lane Marking
 - Proposed Lane Marking
 - Existing Right-of-Way
 - Existing Lane Configuration
 - Proposed Lane Configuration
 - New Pavement
 - Funded TxDOT Improvement

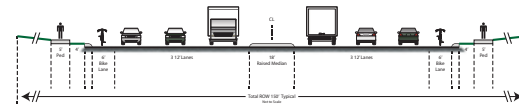
Existing Section
(Whipporwill - US 59)



Funded TxDOT Improvement
(Whipporwill - FM 1484)



Proposed Long Term
(Loop 336 - Willis Waukegan)



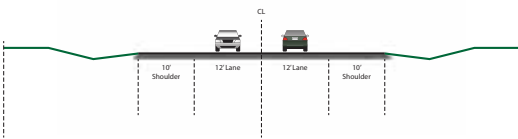


Long Term Improvement
 Widen SH 105 to a six-lane divided curb and gutter (with raised median) from Loop 336 to Willis Waukegan

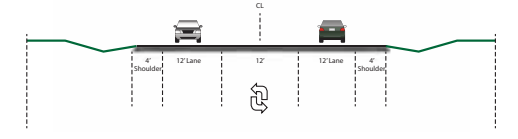
Typical Cross Sections

- SHORT TERM IMPROVEMENTS**
- Traffic Signal (Proposed)
 - Raised Median/Curb
 - Loon
- MEDIUM TERM IMPROVEMENTS**
- Driveway Closure
 - Reconfigure Driveway
- LEGEND**
- Civic
 - Commercial
 - Farm Ranch
 - Residential
 - Undetermined
 - Vacant
 - Traffic Signal (Existing)
 - Existing Lane Marking
 - Proposed Lane Marking
 - Existing Right-of-Way
 - Existing Lane Configuration
 - Proposed Lane Configuration
 - New Pavement
 - Funded TxDOT Improvement

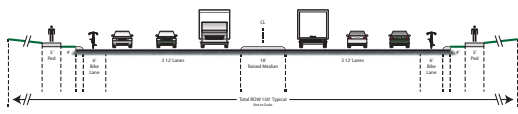
Existing Section
(Whipperwill - US 59)



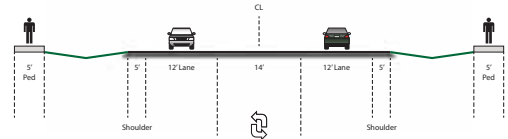
Funded TxDOT Improvement
(Whipperwill - FM 1484)



Proposed Long Term
(Loop 336 - Willis Waukegan)



Proposed Short Term
(Woodridge - Willis Waukegan)





Funded TxDOT Improvement
Restripe SH 105 to accommodate a two-way left-turn lane from Whipporwill to FM 1484.

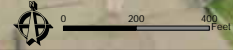
Short Term Improvement
Add pedestrian crossing at SH 105 and Willis Waukegan (new signal).

Long Term Improvement
Widen SH 105 to a six-lane divided curb and gutter (with raised median) from Loop 336 to Willis Waukegan.

Long Term Improvement
Widen SH 105 to a four-lane divided with raised median and shoulders from Willis Waukegan to US 59.

Short Term Improvements

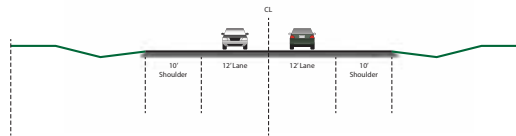
EXISTING	<ul style="list-style-type: none"> Construct WB right-turn lane Construct SB right-turn lane Add pedestrian crosswalks
PROPOSED	



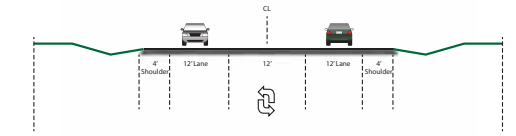
Typical Cross Sections

- SHORT TERM IMPROVEMENTS**
- Traffic Signal (Proposed)
 - Raised Median/Curb
 - Loon
- MEDIUM TERM IMPROVEMENTS**
- Driveway Closure
 - Reconfigure Driveway
- LEGEND**
- Civic
 - Commercial
 - Farm Ranch
 - Residential
 - Undetermined
 - Vacant
 - Traffic Signal (Existing)
 - Existing Lane Marking
 - Proposed Lane Marking
 - Existing Right-of-Way
 - Existing Lane Configuration
 - Proposed Lane Configuration
 - New Pavement
 - Funded TxDOT Improvement

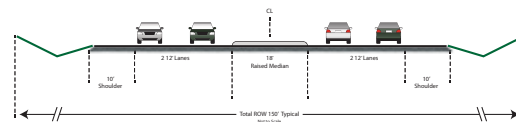
Existing Section
(Whipporwill - US 59)



Funded TxDOT Improvement
(Whipporwill - FM 1484)



Proposed Long Term
(Willis Waukegan - US 59)



SHEET 6



Short Term Improvements

EXISTING

- Construct NB left-turn lane
- Add pedestrian crosswalks

PROPOSED

Long Term Improvement

Widen SH 105 to a four-lane divided with raised median and shoulders from Willis Waukegan to US 59

Funded TxDOT Improvement

Widen SH 105 to accommodate a EB passing lane from west of Crockett Martin to west of Walker

Short Term Improvement

Widen SH 105 to accommodate two-way left-turn lane from Crockett Martin to Carmen

Short Term Improvements

EXISTING

- Construct NB left-turn lane
- Add pedestrian crosswalks

PROPOSED

Typical Cross Sections

SHORT TERM IMPROVEMENTS

- Traffic Signal (Proposed)
- Raised Median/Curb
- Loon

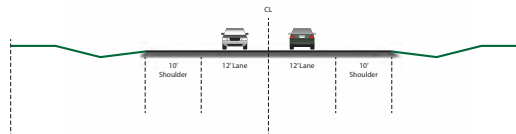
MEDIUM TERM IMPROVEMENTS

- Driveway Closure
- Reconfigure Driveway

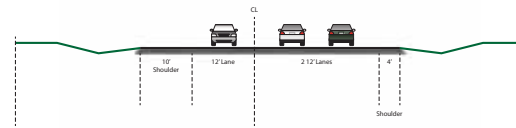
LEGEND

- Civic
- Commercial
- Farm Ranch
- Residential
- Undetermined
- Vacant
- Traffic Signal (Existing)
- Existing Lane Marking
- Proposed Lane Marking
- Existing Right-of-Way
- Existing Lane Configuration
- Proposed Lane Configuration
- New Pavement
- Funded TxDOT Improvement

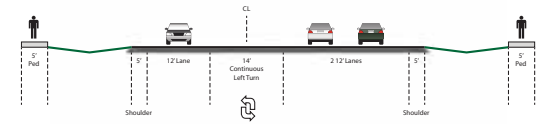
Existing Section
(Whipporwill - US 59)



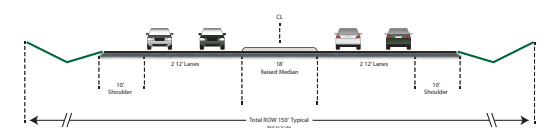
Funded TxDOT Improvement
(West of Crockett Martin - West of Walker)

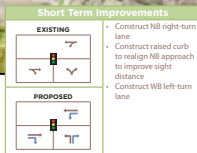


Proposed Short Term
(Crockett Martin - Carmen)



Proposed Long Term
(Willis Waukegan - US 59)





Medium Term Improvement
 Realign Old Highway 105 approach to tie into SH 105 at a right angle

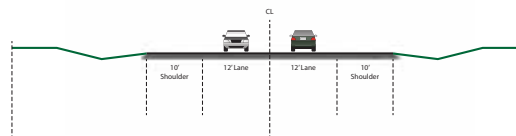
Funded TxDOT Improvement
 Widen SH 105 to accommodate an EB passing lane from west of Crockett Martin to west of Walker

Long Term Improvement
 Widen SH 105 to a four-lane divided with raised median and shoulders from Willis Waukegan to US 59

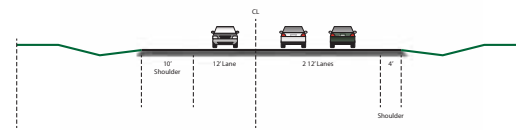
Typical Cross Sections

- SHORT TERM IMPROVEMENTS**
- Traffic Signal (Proposed)
 - Raised Median/Curb
 - Loon
- MEDIUM TERM IMPROVEMENTS**
- Driveway Closure
 - Reconfigure Driveway
- LEGEND**
- Civic
 - Commercial
 - Farm Ranch
 - Residential
 - Undetermined
 - Vacant
 - Traffic Signal (Existing)
 - Existing Lane Marking
 - Proposed Lane Marking
 - Existing Right-of-Way
 - Existing Lane Configuration
 - Proposed Lane Configuration
 - New Pavement
 - Funded TxDOT Improvement

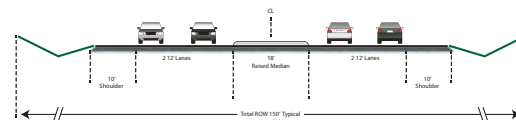
Existing Section
 (Whipporwill - US 59)



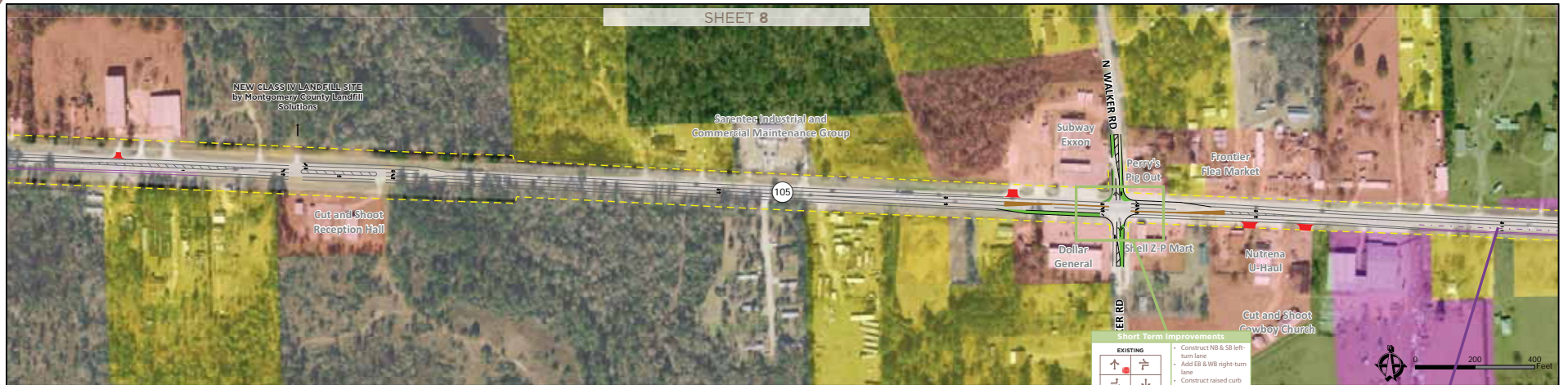
Funded TxDOT Improvement
 (West of Crockett Martin - West of Walker)



Proposed Long Term
 (Willis Waukegan - US 59)



SHEET 8



Long Term Improvement
Widen SH 105 to a four-lane divided with raised median and shoulders from Willis Waukegan to US 59

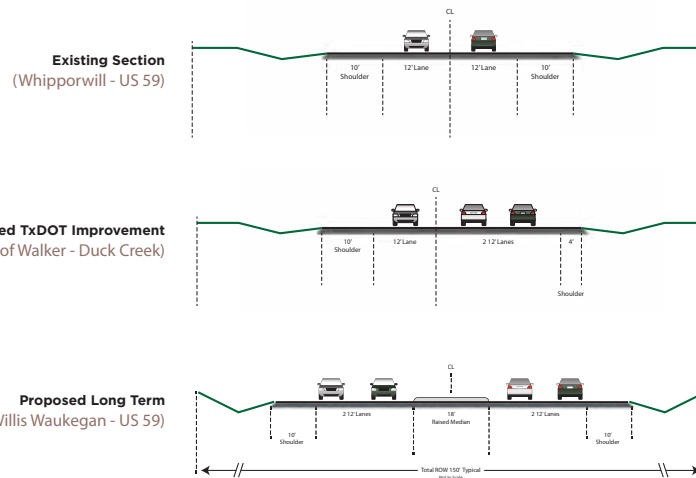
Short Term Improvements

EXISTING	<ul style="list-style-type: none"> Construct NB & SB left-turn lane Add EB & WB right-turn lane Construct raised curb along EB & WB left-turn lane storage and taper
PROPOSED	

Funded TxDOT Improvement
Widen SH 105 to accommodate a EB passing lane from east of Walker to Duck Creek

Typical Cross Sections

- SHORT TERM IMPROVEMENTS**
- Traffic Signal (Proposed)
 - Raised Median/Curb
 - Loon
- MEDIUM TERM IMPROVEMENTS**
- Driveway Closure
 - Reconfigure Driveway
- LEGEND**
- Civic
 - Commercial
 - Farm Ranch
 - Residential
 - Undetermined
 - Vacant
 - Traffic Signal (Existing)
 - Existing Lane Marking
 - Proposed Lane Marking
 - Existing Right-of-Way
 - Existing Lane Configuration
 - Proposed Lane Configuration
 - New Pavement
 - Funded TxDOT Improvement





Funded TxDOT Improvement
 Widen SH 105 to accommodate an EB passing lane from east of Walker to Duck Creek

Long Term Improvement
 Widen SH 105 to a four-lane divided with raised median and shoulders from Willis Waukegan to US 59

Typical Cross Sections

SHORT TERM IMPROVEMENTS

- Traffic Signal (Proposed)
- Raised Median/Curb
- Loon

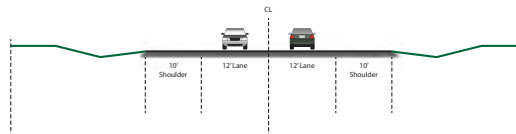
MEDIUM TERM IMPROVEMENTS

- Driveway Closure
- Reconfigure Driveway

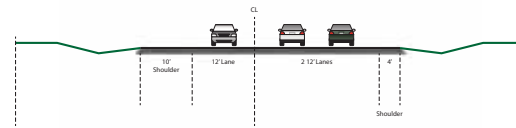
LEGEND

- Civic
- Commercial
- Farm Ranch
- Residential
- Undetermined
- Vacant
- Traffic Signal (Existing)
- Existing Lane Marking
- Proposed Lane Marking
- Existing Right-of-Way
- Existing Lane Configuration
- Proposed Lane Configuration
- New Pavement
- Funded TxDOT Improvement

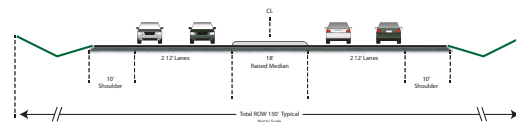
Existing Section
 (Whipporwill - US 59)



Planned TxDOT Improvement
 (East of Walker - Duck Creek)



Proposed Long Term
 (Willis Waukegan - US 59)





Typical Cross Sections

SHORT TERM IMPROVEMENTS

- Traffic Signal (Proposed)
- Raised Median/Curb
- Loon

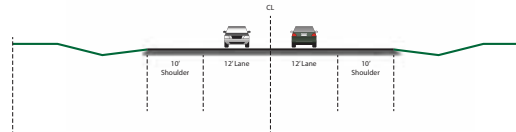
MEDIUM TERM IMPROVEMENTS

- Driveway Closure
- Reconfigure Driveway

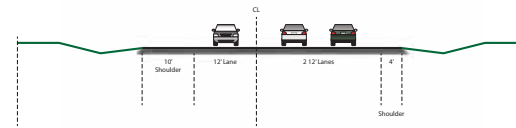
LEGEND

- Civic
- Commercial
- Farm Ranch
- Residential
- Undetermined
- Vacant
- Traffic Signal (Existing)
- Existing Lane Marking
- Proposed Lane Marking
- Existing Right-of-Way
- Existing Lane Configuration
- Proposed Lane Configuration
- New Pavement
- Funded TxDOT Improvement

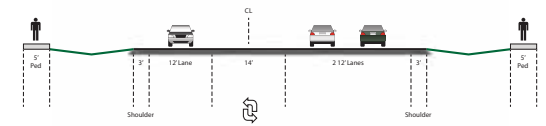
Existing Section
(Whipporwill - US 59)



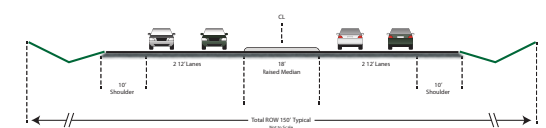
Funded TxDOT Improvement
(East of Walker - Duck Creek)

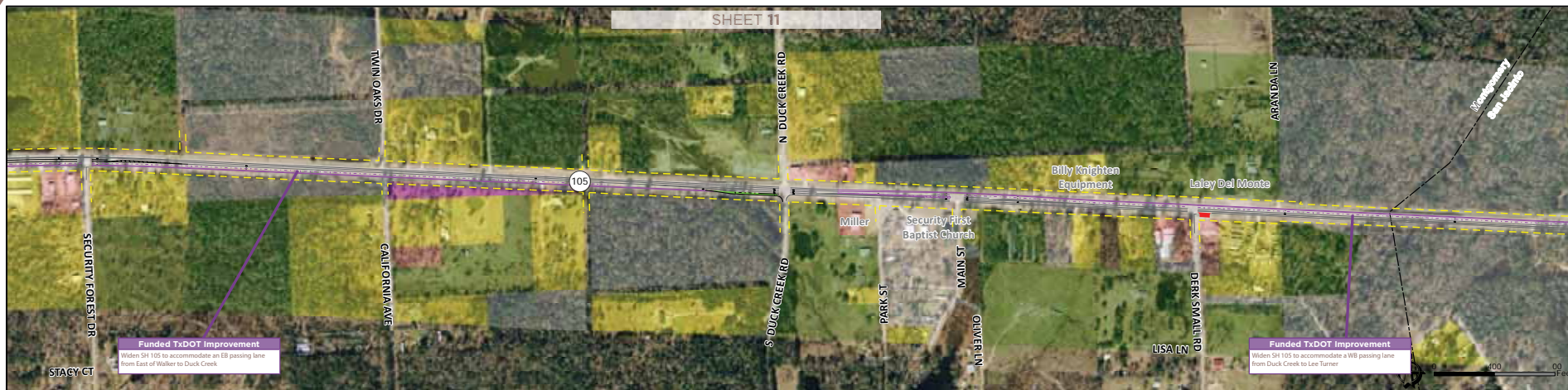


Proposed Short Term
(Pioneer - Security Forest)



Proposed Long Term
(Willis Waukegan - US 59)





Short Term Improvement
Construct EB right-turn lane at Duck Creek

Long Term Improvement
Widen SH 105 to a four-lane divided with raised median and shoulders from Willis Waukegan to US 59

Typical Cross Sections

SHORT TERM IMPROVEMENTS

- Traffic Signal (Proposed)
- Raised Median/Curb
- Loon

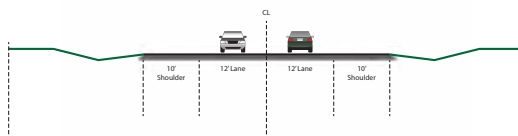
MEDIUM TERM IMPROVEMENTS

- Driveway Closure
- Reconfigure Driveway

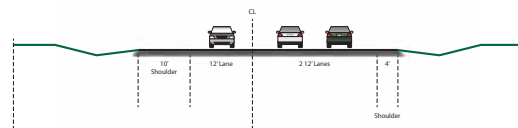
LEGEND

- Civic
- Commercial
- Farm Ranch
- Residential
- Undetermined
- Vacant
- Traffic Signal (Existing)
- Existing Lane Marking
- Proposed Lane Marking
- Existing Right-of-Way
- Existing Lane Configuration
- Proposed Lane Configuration
- New Pavement
- Funded TxDOT Improvement

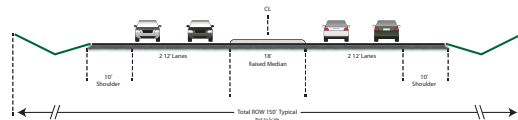
Existing Section
(Whipporwill - US 59)



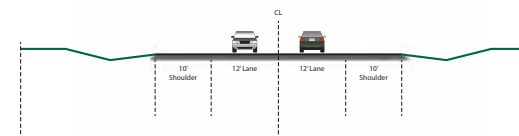
Funded TxDOT Improvement
(East of Walker to Duck Creek)



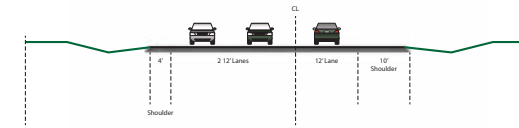
Proposed Long Term
(Willis Waukegan - US 59)



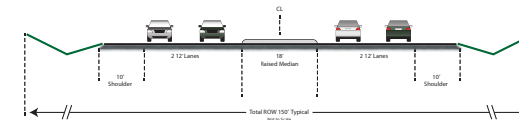
Existing Section
(Whipporwill - US 59)

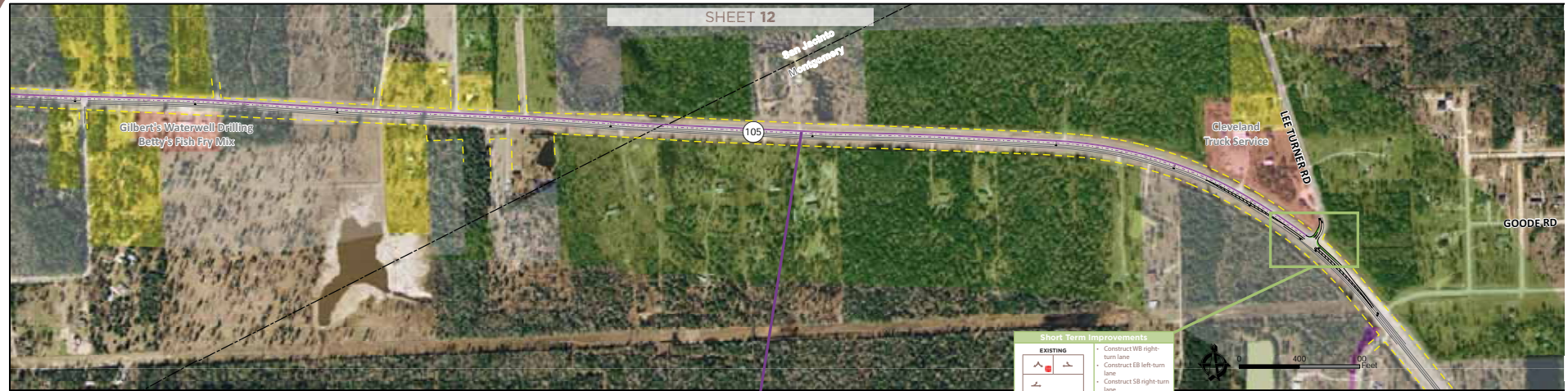


Funded TxDOT Improvement
(Duck Creek - Lee Turner)



Proposed Long Term
(Willis Waukegan - US 59)





SHEET 12

Long Term Improvement
 Widens SH 105 to a four-lane divided with raised median and shoulders from Willis Waukegan to US 59

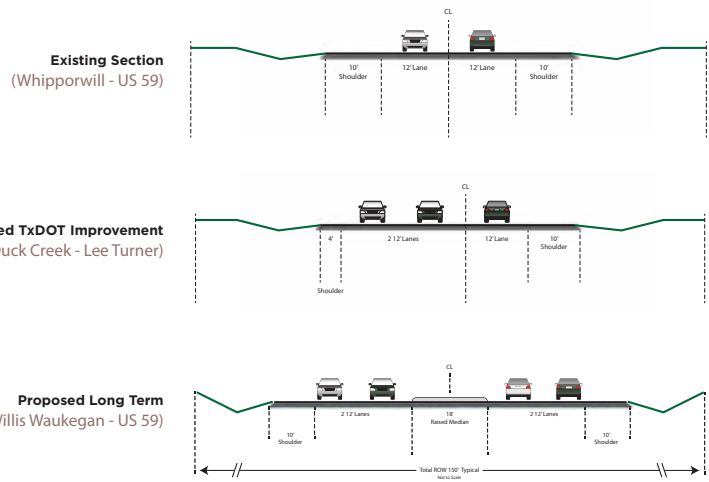
Funded TxDOT Improvement
 Restripe SH 105 to accommodate a WB passing lane from Duck Creek to Lee Turner

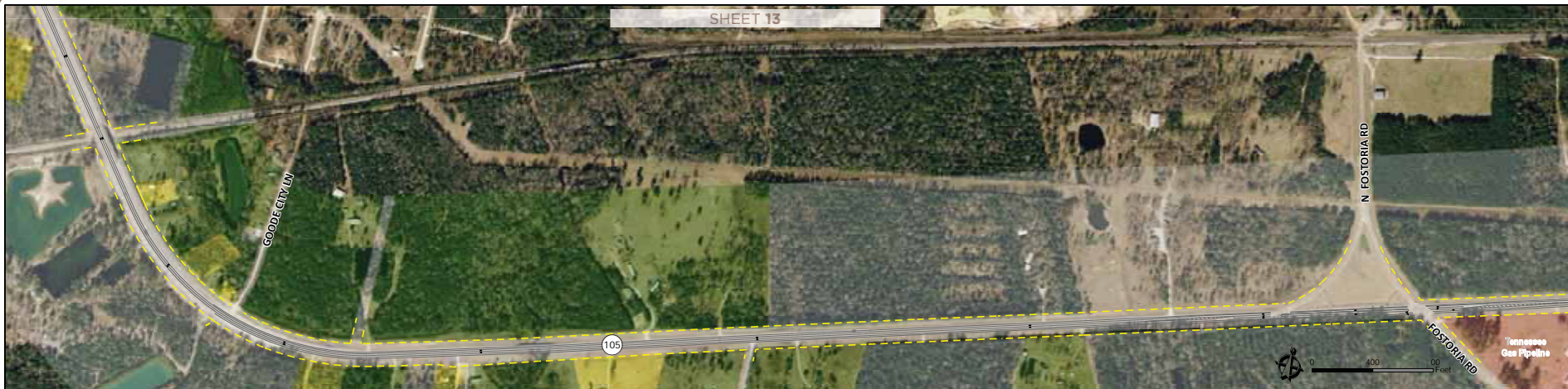
Short Term Improvements

EXISTING	<ul style="list-style-type: none"> Construct WB right-turn lane Construct EB left-turn lane Construct SB right-turn lane
PROPOSED	

Typical Cross Sections

- SHORT TERM IMPROVEMENTS**
- Traffic Signal (Proposed)
 - Raised Median/Curb
 - Loon
- MEDIUM TERM IMPROVEMENTS**
- Driveway Closure
 - Reconfigure Driveway
- LEGEND**
- Civic
 - Commercial
 - Farm Ranch
 - Residential
 - Undetermined
 - Vacant
 - Traffic Signal (Existing)
 - Existing Lane Marking
 - Proposed Lane Marking
 - Existing Right-of-Way
 - Existing Lane Configuration
 - Proposed Lane Configuration
 - New Pavement
 - Funded TxDOT Improvement





Long Term Improvement
 Widen SH 105 to a four-lane divided with raised median and shoulders from Willis Waukegan to US 59

Typical Cross Sections

SHORT TERM IMPROVEMENTS

- Traffic Signal (Proposed)
- Raised Median/Curb
- Loon

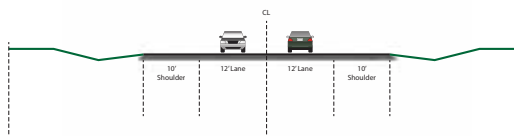
MEDIUM TERM IMPROVEMENTS

- Driveway Closure
- Reconfigure Driveway

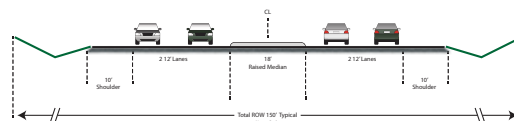
LEGEND

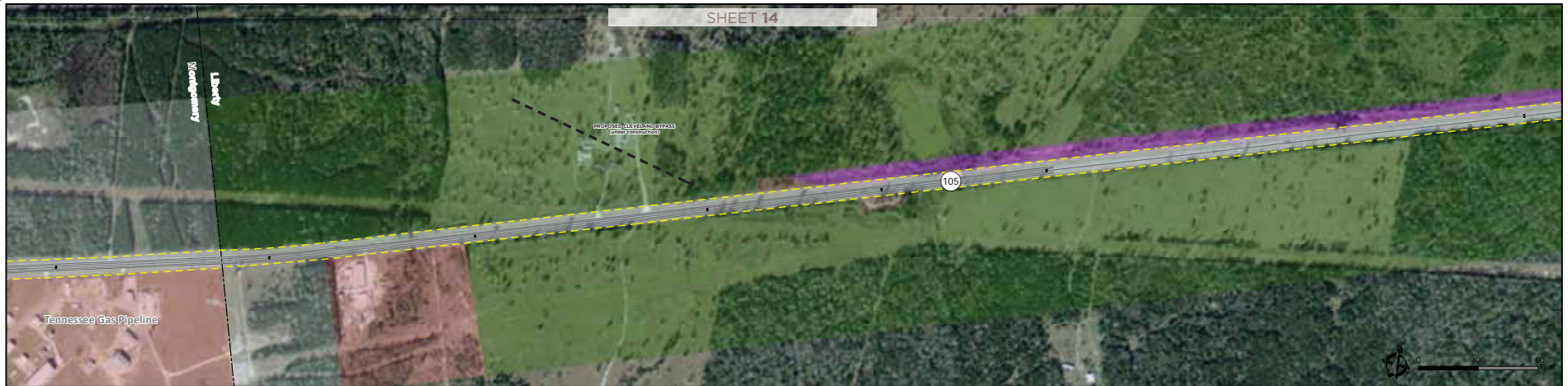
- Civic
- Commercial
- Farm Ranch
- Residential
- Undetermined
- Vacant
- Traffic Signal (Existing)
- Existing Lane Marking
- Proposed Lane Marking
- Existing Right-of-Way
- Existing Lane Configuration
- Proposed Lane Configuration
- New Pavement
- Funded TxDOT Improvement

Existing Section
 (Whipporwill - US 59)



Proposed Long Term
 (Willis Waukegan - US 59)





Long Term Improvement

Widen SH 105 to a four-lane divided with raised median and shoulders from Willis Waukegan to US 59

Typical Cross Sections

SHORT TERM IMPROVEMENTS

- Traffic Signal (Proposed)
- Raised Median/Curb
- Loon

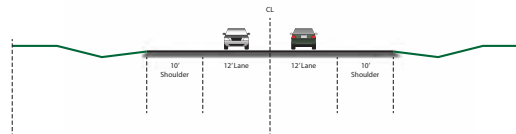
MEDIUM TERM IMPROVEMENTS

- Driveway Closure
- Reconfigure Driveway

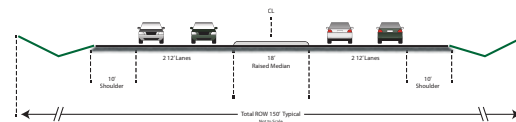
LEGEND

- Civic
- Commercial
- Farm Ranch
- Residential
- Undetermined
- Vacant
- Traffic Signal (Existing)
- Existing Lane Marking
- Proposed Lane Marking
- Existing Right-of-Way
- Existing Lane Configuration
- Proposed Lane Configuration
- New Pavement
- Funded TxDOT Improvement

Existing Section
(Whipporwill - US 59)



Proposed Long Term
(Willis Waukegan - US 59)



SHEET 15

Cornerstone Church of Cleveland

105

CR 381

Short-Term Improvements

		<ul style="list-style-type: none"> Construct WB left-turn lane Construct EB left-turn lane

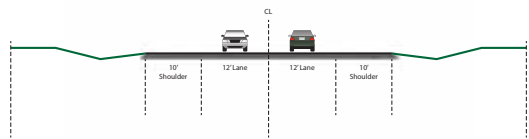
Long Term Improvement

Widen SH 105 to a four-lane divided with raised median and shoulders from Willis Waukegan to US 59

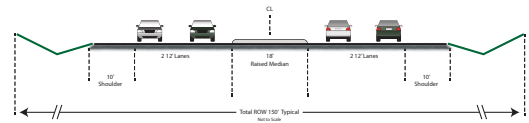
Typical Cross Sections

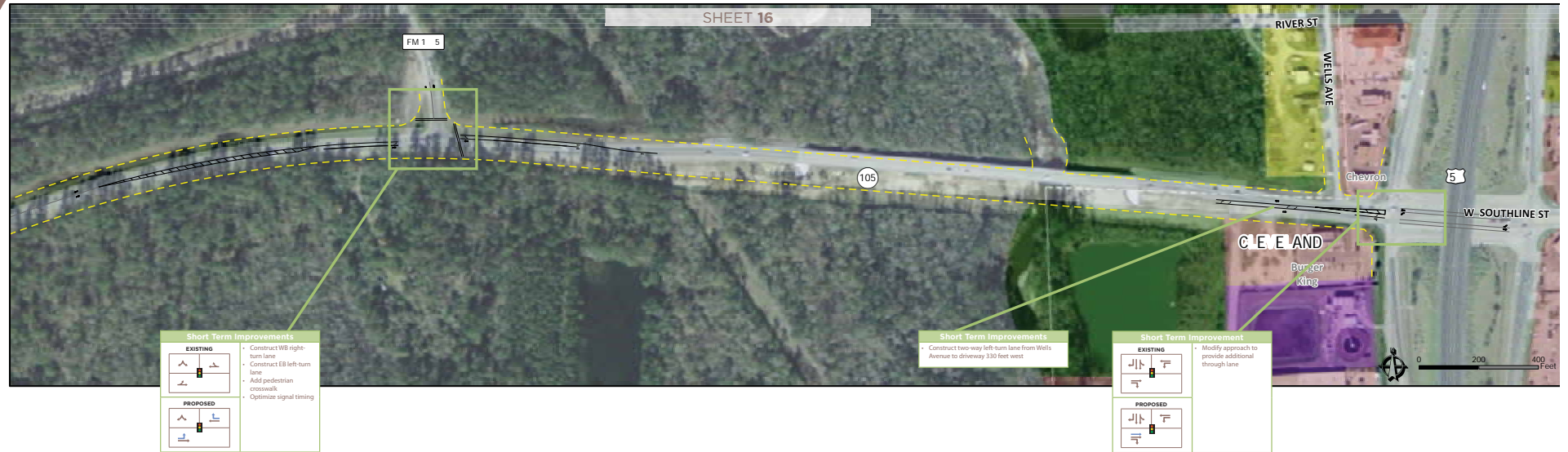
- SHORT TERM IMPROVEMENTS**
- Traffic Signal (Proposed)
 - Raised Median/Curb
 - Loon
- MEDIUM TERM IMPROVEMENTS**
- Driveway Closure
 - Reconfigure Driveway
- LEGEND**
- Civic
 - Commercial
 - Farm Ranch
 - Residential
 - Undetermined
 - Vacant
 - Traffic Signal (Existing)
 - Existing Lane Marking
 - Proposed Lane Marking
 - Existing Right-of-Way
 - Existing Lane Configuration
 - Proposed Lane Configuration
 - New Pavement
 - Funded TxDOT Improvement

Existing Section
(Whipporwill - US 59)



Proposed Long Term
(Willis Waukegan - US 59)





Typical Cross Sections

SHORT TERM IMPROVEMENTS

- Traffic Signal (Proposed)
- Raised Median/Curb
- Loon

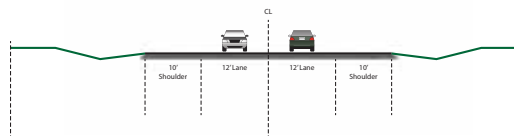
MEDIUM TERM IMPROVEMENTS

- Driveway Closure
- Reconfigure Driveway

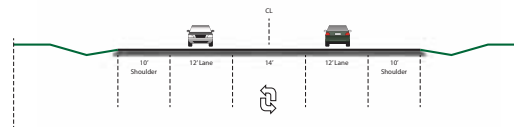
LEGEND

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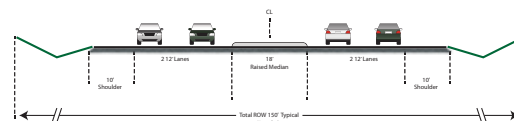
Existing Section
(Whipcorwill - US 59)



Proposed Short Term
(Wells Avenue to Driveway 330' West)



Proposed Long Term
(Willis Waukegan - US 59)



APPENDIX F COST ESTIMATE DETAILS

This appendix provides cost estimates for prioritized improvement projects. Included are a summary of estimated costs, and details of quantities and bid prices. Assumptions upon which the cost estimates were developed are also provided.

Cost Summary and Responsible Agency
Loop 336 to US 59 (Length = 18.7 Miles)

	Primary Funding Source		TxDOT		City/County				TOTALS (In Millions)	
	Improvement	Number	Unit	Unit Cost	Cost	Number	Unit	Unit Cost		Cost
Short Term (less than 5 years)	NEW PROJECTS:									
	New Traffic Signal (Crystal Forest Intersection)	1	EA	\$ 200,000.00	\$ 200,000					
	Upgrade Signal Equipment (Loop 336 to FM 1485)	2	INT	\$ 20,500.00	\$ 41,000					
	Optimize Traffic Signal Timing	9	INT	\$ 5,000.00	\$ 45,000					
	Add Right Turn Lane - SH 105 (Average Length = 225')	2	EA	\$ 72,800.00	\$ 145,600					
	Add Right Turn Lane - SH 105 (Average Length = 400')	4	EA	\$ 113,100.00	\$ 452,400					
	Add Right Turn Lane - SH 105 (Average Length = 640')	3	EA	\$ 173,700.00	\$ 521,100					
	Widen SH 105 - From Loop 336 to East of Douget	2.1	MI	\$ 1,651,519.00	\$ 3,468,190					
	Bridge Widening - Lawrence Creek	3,200	SF	\$ 75.00	\$ 240,000					
	Bridge Culvert Widening - West Fork Crystal Creek	190	SF	\$ 120.00	\$ 22,800					
	Add Raised Median / Channelization (Concrete)	24,274	SF	\$ 10.00	\$ 242,740	1,350	SF	\$ 10.00	\$ 13,500	
	Driveway Closure	1	EA	\$ 1,353.00	\$ 1,353					
	Add Pedestrian Crosswalks	8	EA	\$ 4,143.00	\$ 33,144					
	Standardize Driveway Width	14	EA	\$ 3,179.00	\$ 44,506					
	Concrete Sidewalks (Loop 336 to east of Douget Rd)	30,020	SF	\$ 9.00	\$ 270,180					
	Concrete Sidewalks (Woodridge Dr to Willis Waukegan Rd)	34,000	SF	\$ 9.00	\$ 306,000					
	Concrete Sidewalks (Crockett Martin Rd to Carmen Blvd)	19,000	SF	\$ 9.00	\$ 171,000					
	Concrete Sidewalks (Pioneer Rd to Security Forest Dr)	20,000	SF	\$ 9.00	\$ 180,000					
	Add NB Right Turn Lane - Crystal Forest					1	EA	\$ 42,800.00	\$ 42,800	
	Add SB Right Turn Lane - FM 1484					1	EA	\$ 80,200.00	\$ 80,200	
	Add NB Left Turn Lane - Crockett Martin					1	EA	\$ 56,200.00	\$ 56,200	
	Add NB Left Turn Lane - Crockett Trace					1	EA	\$ 61,500.00	\$ 61,500	
	Add NB Right Turn Lane - Old Highway 105					1	EA	\$ 84,400.00	\$ 84,400	
	Add NB & SB Left Turn Lanes - Walker					1	EA	\$ 157,200.00	\$ 157,200	
	Add SB Right Turn Lane - Lee Turner					1	EA	\$ 45,200.00	\$ 45,200	
	Widening (Douget Road)					0.1	MI	\$ 1,651,519.00	\$ 165,152	
	FUNDED PROJECTS:									
TxDOT Improvements (Montgomery County) – Super 2 Passing Lanes, Center Left Turn Lane and Asphalt Overlay	1	LS	\$ 5,130,000	\$ 5,130,000						
TxDOT Improvements (San Jacinto County) – Super 2 Passing Lanes and Asphalt Overlay	1	LS	\$ 700,000	\$ 700,000						
TxDOT Improvements (Liberty County) – Super 2 Passing Lanes and Asphalt Overlay	1	LS	\$ 1,170,000	\$ 1,170,000						
TOTAL FOR SHORT TERM IMPROVEMENTS (less than 5 years)				\$ 13,385,013				\$ 706,152	\$ 14.09	
Medium Term (5 – 15 years)	Upgrade Signal Equipment (Whipponwill to Crystal Forest)	1	INT	\$ 20,500.00	\$ 20,500					
	Widen SH 105 - From East of Douget to Crystal Forest	1.0	MI	\$ 1,651,519.00	\$ 1,651,519					
	Bridge Culvert Widening - Unnamed Creek near Jefferson Chemical Rd	1,012	SF	\$ 80.00	\$ 80,960					
	Add Raised Median / Channelization (Concrete)	24,385	SF	\$ 10.00	\$ 243,850					
	Driveway Closure	17	EA	\$ 1,353.00	\$ 23,001					
	Add NB Left Turn Lane - Jefferson					1	EA	\$ 157,000.00	\$ 157,000	
	Realign Old SH 105					1	EA	\$ 148,200.00	\$ 148,200	
TOTAL FOR MEDIUM TERM IMPROVEMENTS (5 – 15 years)				\$ 2,019,630				\$ 305,200	\$ 2.33	
Long Term (15 years +)	Widen SH 105 from 4-Lane to 6-Lane - From Loop 336 to Willis Waukegan (Full Reconstruction)	4.0	MI	\$ 4,477,572.00	\$ 17,910,288					
	Widen SH 105 from 2-Lane to 4-Lane - From Willis Waukegan to US 59 (Full Reconstruction)	14.5	MI	\$ 3,805,227.00	\$ 55,175,792					
	Bridge Reconstruction - East Fork Crystal Creek, Hurricane Creek, Caney Creek, Cagle Branch Creek, Spring Branch Creek, Lawrence Creek, Peach Creek, Jayhawker Creek and East Fork San Jacinto River	243,040	SF	\$ 60.00	\$ 14,582,400					
	Bridge Culvert Reconstruction - West Fork Crystal Creek, Unnamed Creek near Jefferson Chemical Rd and Bee Branch Creek	7,900	SF	\$ 75.00	\$ 592,500					
	Add Raised Median / Channelization (Concrete)	1,449,952	SF	\$ 10.00	\$ 14,499,520					
	Concrete Sidewalks (Loop 336 to Willis Waukegan Rd)	210,870	SF	\$ 9.00	\$ 1,897,830					
	Butler Street Extension (From Loop 336 to Jefferson Chemical Rd)					1	EA	\$ 1,044,400.00	\$ 1,044,400	
TOTAL FOR LONG TERM IMPROVEMENTS (15 years +)				\$ 104,658,330				\$ 1,044,400	\$ 105.70	
GRAND TOTAL				\$	120,063,172	\$	2,055,752	\$	122.12	

Units: EA = Each INT = Intersection MI = Miles SF = Square Feet LS = Lump Sum

Cost Estimate Assumptions

	Improvement	Assumptions
Short Term (less than 5 years)	New Traffic Signal (Crystal Forest Intersection)	Costs include vehicle detection, signal heads, street lighting, cabling and conduit. The costs also include pedestrian pads, curb ramps, proposed pavement markings and roadside signs. Traffic signal interconnection, as per TxDOT standards, will also be a part of the new traffic signal.
	Upgrade Signal Equipment (Loop 336 to FM 1485)	Costs for upgrading existing traffic signal controller and cabinet, and installing wireless traffic signal interconnect.
	Optimize Traffic Signal Timing	Cost to obtain traffic count data, develop signal timing inputs, field implement/fine tune and provide documentation.
	Add Right Turn Lane - SH 105 (Average Length = 225')	Costs for adding right turn lanes (RTL's) are based on an average length of 225 LF construction area per RTL. Costs include all the materials required for the widening of existing SH 105 to accommodate the RTL at the intersection.
	Add Right Turn Lane - SH 105 (Average Length = 400')	Costs for adding right turn lanes (RTL's) are based on an average length of 400 LF construction area per RTL. Costs include all the materials required for the widening of existing SH 105 to accommodate the RTL at the intersection.
	Add Right Turn Lane - SH 105 (Average Length = 640')	Costs for adding right turn lanes (RTL's) are based on an average length of 640 LF construction area per RTL. Costs include all the materials required for the widening of existing SH 105 to accommodate the RTL at the intersection.
	Widen SH 105 - From Loop 336 to East of Douget	Costs for widening SH 105 were calculated on a per mile basis. Costs include all the materials required for the widening of existing SH 105 to accommodate the addition of a raised median with left turn bays for access to businesses. Drainage improvements were also included in the costs since existing ditches would have to be relocated due to the roadway widening.
	Add Raised Median / Channelization (Concrete)	Costs for adding raised medians/channelizations include all materials such as curb, conc riprap and striping. The cost was calculated on a square foot basis.
	Add Pedestrian Crosswalks	Costs included adding pavement markings to identify the new crosswalks at the selected intersections.
	Standardize Driveway Width	Costs for standardizing driveway widths include adding a narrow raised median to minimize the excessive width of some driveways. This work includes all materials such as curb and conc riprap. The cost was calculated on a square foot basis.
	Concrete Sidewalks (Loop 336 to east of Douget Rd, Woodridge Dr to Willis Waukegan Rd, Crockett Martin Rd to Carmen Blvd and Pioneer Rd to Security Forest Dr)	Costs for concrete sidewalks include installation of a sidewalk with new curb ramps located at each cross street intersection. The costs was calculated on a square foot basis.
	Add NB Right Turn Lane - Crystal Forest	Costs for adding right turn lane at the Crystal Forest intersection. Costs include all the materials required for the widening cross street to accommodate the RTL at the intersection.
	Add SB Right Turn Lane - FM 1484	Costs for adding right turn lane at the FM 1484 intersection. Costs include all the materials required for the widening cross street to accommodate the RTL at the intersection.
	Add NB Left Turn Lane - Crockett Martin	Costs for adding left turn lane at the Crockett Martin intersection. Costs include all the materials required for the widening cross street to accommodate the LTL at the intersection.
	Medium Term (5-15 years)	Add NB Left Turn Lane - Crockett Trace
Add NB Right Turn Lane - Old Highway 105		Costs for adding right turn lane at the Old Hwy 105 intersection. Costs include all the materials required for the widening cross street to accommodate the RTL at the intersection.
Add NB & SB Left Turn Lanes - Walker		Costs for adding left turn lanes at the Walker intersection. Costs include all the materials required for the widening cross street to accommodate the LTL's at the intersection.
Add SB Right Turn Lane - Lee Turner		Costs for adding right turn lane at the Lee Turner intersection. Costs include all the materials required for the widening cross street to accommodate the RTL at the intersection.
Widening (Douget Road)		Costs for widening Douget Road were calculated on a per mile basis. Costs include all the materials required for the widening of existing Douget Road to accommodate a left turn lane at the SH 105 intersection. Drainage improvements were also included in the costs since existing ditches would have to be relocated due to the roadway widening.
Upgrade Signal Equipment (Whiporwill to Crystal Forest)		Costs for upgrading existing traffic signal controller and cabinet, and installing wireless traffic signal interconnect.
Widen SH 105 - From East of Douget to Crystal Forest		Costs for widening SH 105 were calculated on a per mile basis. Costs include all the materials required for the widening of existing SH 105 to accommodate the addition of a raised median with left turn bays for access to businesses. Drainage improvements were also included in the costs since existing ditches would have to be relocated due to the roadway widening.
Add Raised Median / Channelization (Concrete)		Costs for adding raised medians/channelizations include all materials such as curb, conc riprap and striping. The cost was calculated on a square foot basis.
Driveway Closure		Costs for driveway closures include demolition of existing driveway and placement of curb, embankment and topsoil.
Add NB Left Turn Lane - Jefferson		Costs for adding left turn lane at the Jefferson intersection. Costs include all the materials required for the widening cross street to accommodate the LTL at the intersection.
Realign Old SH 105	Costs for realigning of cross street are based on a 250 LF construction area. Costs include demolition of existing cross street and all the materials required for the relocation of the new cross street. Drainage improvements were also included in the costs since existing ditches would have to be relocated due to the roadway widening. Costs for acquiring ROW required for the realignment are not included in the estimate.	

Cost Estimate Assumptions (Continued)

	Improvement	Assumptions
Long Term (15 years +)	Widen SH 105 from 4-Lane to 6-Lane (Widen Only)	Costs for widening SH 105 from 4-lanes to 6-lanes were calculated on a per mile basis. Costs include all the materials required for the widening of existing SH 105 to accommodate the additional 2 lanes and a center raised median. Drainage improvements were also included in the costs since existing ditches would have to be relocated due to the roadway widening.
	Widen SH 105 from 4-Lane to 6-Lane (Full Reconstruction)	Costs for widening and reconstructing SH 105 from 4-lanes to 6-lanes were calculated on a per mile basis. Costs include all the materials required for the full reconstruction of SH 105 and addition of 2 lanes and a center raised median. Drainage improvements were also included in the costs since existing ditches would have to be relocated due to the roadway widening.
	Widen SH 105 from 2-Lane to 4-Lane (Widen Only)	Costs for widening SH 105 from 2-lanes to 4-lanes were calculated on a per mile basis. Costs include all the materials required for the widening of existing SH 105 to accommodate the additional 2 lanes and a center raised median. Drainage improvements were also included in the costs since existing ditches would have to be relocated due to the roadway widening.
	Widen SH 105 from 2-Lane to 4-Lane (Full Reconstruction)	Costs for widening and reconstructing SH 105 from 2-lanes to 4-lanes were calculated on a per mile basis. Costs include all the materials required for the full reconstruction of SH 105 and addition of 2 lanes and a center raised median. Drainage improvements were also included in the costs since existing ditches would have to be relocated due to the roadway widening.
	Add Raised Median / Channelization (Concrete)	Costs for adding raised medians/channelizations include all materials such as curb, conc riprap and striping. The cost was calculated on a square foot basis.
	Concrete Sidewalks	Costs for concrete sidewalks include installation of a sidewalk with new curb ramps located at each cross street intersection. The costs was calculated on a square foot basis.

Summary of Quantities for Short Term Improvements

Segment		Short Term													
		Improvements Along SH 105 by TxDOT													
		New Traffic Signal	Upgrade Signal	Optimize Traffic Signal Timing	Add Right Turn Lane - SH 105 (Average Length = 225')	Add Right Turn Lane - SH 105 (Average Length = 400')	Add Right Turn Lane - SH 105 (Average Length = 640')	Widen SH 105	Bridge Widening	Bridge Widening (Concrete)	Add Raised Median / Chan. (Concrete)	Driveway Closure	Add Pedestrian Crosswalks	Standardize Driveway Width	Concrete Sidewalks
EA	INT	INT	EA	EA	EA	MI	SF	SF	SF	EA	EA	EA	SF		
1	From Loop 336 to East of Douget		2				0.7		190	20,265	1	2	3	30,020	
2	Douget Intersection Improvements						0.1								
3	From East of Douget to Whipporwill														
4	From Whipporwill to Crystal Forest	1										1	8		
5	From Crystal Forest to Willis Waukegan				1	2	1					1		34,000	
6	From Willis Waukegan to Walker					2				2,100		3	3	19,000	
7	From Walker to US 59				1		2	1.3		1,909		1		20,000	
Total	From Loop 336 to US 59	1	2	9	2	4	3	2.1	3,200	190	24,274	1	8	14	103,020
		EA	INT	INT	EA	EA	EA	MI	SF	SF	SF	EA	EA	EA	SF

Summary of Quantities for Short Term Improvements (Continued)

Segment		Short Term							
		Improvements by City/County							
		Add NB Right Turn Lane - Crystal Forest	Add SB Right Turn Lane - FM 1484	Add NB Left Turn Lane - Crockett Martin	Add NB Left Turn Lane - Crockett Trace	Add NB Right Turn Lane - Old Highway 105	Add NB & SB Left Turn Lanes - Walker	Add SB Right Turn Lane - Lee Turner	Widening (Douget Road)
EA	EA	EA	EA	EA	EA	EA	MI	SF	
1	From Loop 336 to East of Douget								
2	Douget Intersection Improvements						0.1		
3	From East of Douget to Whipporwill								
4	From Whipporwill to Crystal Forest	1							
5	From Crystal Forest to Willis Waukegan								
6	From Willis Waukegan to Walker		1	1	1	1			1,350
7	From Walker to US 59						1		
Total	From Loop 336 to US 59	1	1	1	1	1	1	0.1	1,350
		EA	EA	EA	EA	EA	EA	MI	SF

Summary of Quantities for Medium Term Improvements

Segment		Medium Term						
		Improvements Along SH 105 by TxDOT				Improvements by City/County		
		Upgrade Signal Equipment	Widen SH 105	Bridge Widening (Culvert)	Add Raised Median / Channelization (Concrete)	Driveway Closure	Add NB Left Turn Lane - Jefferson	Realign Old SH 105
		INT	MI	SF	SF	EA	EA	EA
1	From Loop 336 to East of Douget							
2	Douget Intersection Improvements							
3	From East of Douget to Whipporwill		0.6	1,012	24,385	4	1	
4	From Whipporwill to Crystal Forest	1	0.4					
5	From Crystal Forest to Willis Waukegan							
6	From Willis Waukegan to Walker					7		1
7	From Walker to US 59					6		
Total	From Loop 336 to US 59	1	1.0	1,012	24,385	17	1	1
		INT	MI	SF	SF	EA	EA	EA

Summary of Quantities for Long Term Improvements

Segment		Long Term						
		Improvements Along SH 105 by TxDOT						
		Widen SH 105 from 4-lane to 6-lane (Full Reconstruction)	Widen SH 105 from 2-lane to 4-lane (Full Reconstruction)	Bridge Reconstruction	Bridge Reconstruction (Culvert)	Butler Street Extension	Add Raised Median / Channelization (Concrete)	Concrete Sidewalks
		MI	MI	Sf	SF	EA	SF	SF
1	From Loop 336 to Willis Waukegan	4.0		24,926	6,180	1	234,315	210,870
2	From Willis Waukegan to US 59		14.5	218,114	1,720		1,215,637	
Total	From Loop 336 to US 59	4.0	14.5	243,040	7,900	1	1,449,952	210,870
		MI	MI	SF	SF	EA	SF	SF

Units: EA = Each INT = Intersection MI = Miles SF = Square Feet LS = Lump Sum

SH 105 COST BRIDGE WIDENING/RECONSTRUCTION

Structure Number	Water/Roadway Crossing	Type	Existing Bridge		Bridge Widening/Reconstruction Needed					
			Length	Width	Short Term Widening		Medium Term Widening		Long Term New Bridge	
			LF	LF	LF	SF	LF	SF	LF	SF
3	West Fork Crystal Creek	Culvert	38	86	5	190	0	0	103	3,914
4	Unnamed Creek	Culvert	22	45	0	0	46	1,012	103	2,266
5	East Fork Crystal Creek	Bridge	182	49.7	0	0	0	0	103	18,746
6	Hurricane Creek	Bridge	60	48.5	0	0	0	0	103	6,180
7	Caney Creek	Bridge	645	46	0	0	0	0	86	55,470
8	Cagle Branch Creek	Bridge	120	46	0	0	0	0	86	10,320
9	Spring Branch Creek	Bridge	120	46	0	0	0	0	86	10,320
10	Lawrence Creek	Bridge	200	46	16	3,200	0	0	86	17,200
11	Peach Creek	Bridge	664	46	0	0	0	0	86	57,104
12	BNSF Railroad	Bridge	250	88.9	0	0	0	0	0	0
13	Jayhawker Creek	Bridge	250	47	0	0	0	0	86	21,500
14	Bee Branch Creek	Culvert	20	45	0	0	0	0	86	1,720
15	East Fork San Jacinto River	Bridge	1,100	44	0	0	0	0	42	46,200
TOTALS						3,390		1,012		250,940
						SF		SF		SF

Calculations for Bridge Culvert Costs

Structure Number	Water/Roadway Crossing	Calculations for Bridge Culvert Costs					
		Short Term					
		Price per LF	Box Culvert	Head Wall	Total	Calc Price per SF	Price per SF Used
3	West Fork Crystal Creek	\$650	\$13,000	\$9,000	\$22,000	\$115.79	\$120

Structure Number	Water/Roadway Crossing	Calculations for Bridge Culvert Costs					
		Medium Term					
		Price per LF	Box Culvert	Head Wall	Total	Calc Price per SF	Price per SF Used
4	Unnamed Creek	\$650	\$59,800	\$18,000	\$77,800	\$76.88	\$80

Structure Number	Water/Roadway Crossing	Calculations for Bridge Culvert Costs						
		Long Term						
		Price per LF	Box Culvert	Head Wall	Removal of Existing Culvert	Total	Calc Price per SF	Price per SF Used
3	West Fork Crystal Creek	\$650	\$268,800	\$18,000	\$5,460	\$291,260	\$74.71	
4	Unnamed Creek	\$650	\$133,900	\$18,000	\$2,730	\$154,630	\$68.24	
14	Bee Branch Creek	\$650	\$11,800	\$18,000	\$1,350	\$131,150	\$76.24	
LONG TERM TOTALS						\$577,040	\$73.04	\$75