



From the Office of Robert T. Herrera, City Manager
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July 10, 2014

Honorable Mayor Jackson and City Council:

The attached preliminary report on F.M. 1103 outlines identified suggestions and a proposed action plan addressing the various transportation and mobility needs associated with this major corridor in Cibolo, Texas.

The preliminary report identifies certain cost estimates, funding strategies, and potential partnerships which may enhance the City's ability to make the recommended transportation enhancements. Some of the recommended improvements may be implemented over a time period of less than five years and as long as ten to fifteen years, plus (+).

The report identifies:

1. Short term improvements - Those improvements which can occur over a three to five year period, depending on funding and receiving approval from the Texas Department of Transportation to make certain improvements.
2. Mid-term improvements - Those improvements which can occur over a five to ten year period, depending on funding and receiving approval from the Texas Department of Transportation to make certain improvements.
3. Long term improvements – Those improvements which can occur over a ten to fifteen year period, depending on funding and receiving approval from the Texas Department of Transportation to make certain improvements.

The preliminary report should be discussed with the Planning and Zoning Commission, Streets and Drainage Commission, and the Economic Development Commission.

The report suggests that if F.M. 1103 is going to be improved, then the City can no longer wait for the Texas Department of Transportation or others (MPO) to fund the road improvements. The City must decide to move forward and lead others (public/private) to achieve this desired goal.

I want to acknowledge that the following report could not have been written without the professional advice of Police Chief Gary Cox, Director of Planning and Engineering Rudy Klein, Director of Public Works Tim Fousse, City Planner Lisa Gonzalez, and Executive Assistant Leigh Ann Rogers.

Sincerely,

Robert T. Herrera
City Manager

Introduction

At the May 27, 2014 regular City Council meeting, the City Council directed the City Manager to prepare a preliminary study to address mobility challenges along F.M. 1103 and to assess the impact associated with the steady residential development which is occurring along F.M. 1103. The City Council also asked the City Manager to identify options to slow down the pace of residential subdivisions along this corridor.

As residential developments continue to occur along this travel corridor, the community will experience on a more frequent basis traffic concerns and delays associated with increased population as residents travel to work, shopping areas, schools and recreation areas.



The following report was prepared in house by our city staff along with some consultation from the firms of Raba Kistner, LNV Engineers, and Southwest Securities Group. The report intends to address the following study elements which may provide additional insight on some options to improve mobility along F.M. 1103:

- I. Suggested improvements to F.M. 1103 which could be phased in to meet and soften the financial outlay of capital:
 - a. roadway improvements
 - b. the installation of traffic signals at strategic locations
 - c. pedestrian /bicycle safety improvements
 - d. the re-routing of F.M. 1103 to S.H. 78; ultimately extending this road to I-10
- II. Offer suggestions on how to address and finance F.M. 1103 road enhancements.
- III. Projected residential growth anticipated along F.M. 1103 over the next five to seven years.
- IV. Potential options to slow down pace of residential subdivisions.

The City of Cibolo should take the initiative to spearhead proposed road improvements along F.M. 1103. The City rightfully should assume a leadership role to coordinate meetings with various stakeholders and to work closely in partnership with both the private sector and other public entities. Without this joint participation, the financial costs to bear the recommended short term to long term road improvements may fall solely on the City of Cibolo, Texas. The amount of financial investment needed to address the road enhancements, at this time in Cibolo's stage of growth as a community, is cost prohibitive.

The proposed road improvements for the existing F.M. 1103 starts at the intersection of F.M. 1103 and IH-35 and continues along the corridor until the terminus of the roadway at the intersection of F.M. 1103 and F.M. 78. The proposed re-routing continues south of the existing F.M. 1103 corridor (from the east-west bend of existing F.M. 1103 near Brite Road) for approximately 6 miles until reaching IH-10.



The study area is partially located within the cities of Cibolo and Schertz. It is predominately located within Guadalupe County with a small portion of the northern area being located in Comal County.

In 2007, the Texas Department of Transportation prepared a study to improve F.M. 1103 from I-35 to I-10.

The 2007 study identified road improvements consisting of widening, re-routing and extending this state-owned farm to market road corridor. The estimated cost in 2007 was \$ 126.8M. There was not enough funding to do this project in phases then; and the State of Texas Department of Transportation has indicated they do not have the funding to do this project in the near future, and, phasing the construction segments does not appear to be realistic at this time.

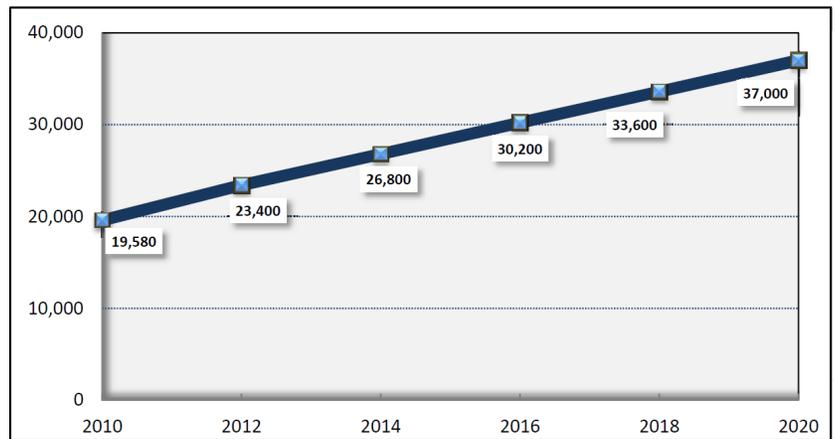
Therefore, addressing the envisioned and needed road enhancements along F.M. 1103 will require creativity and corroboration assistance from several partners. Additionally, the design (width, number of road lanes and length of construction) will have to be phased in, and in all likelihood, the project may have to be valued engineered even farther. This news is unfortunate.

The City of Cibolo, Texas is a rapidly growing community. In 2014, the city’s physical boundaries consists of approximately 33 square miles of city limits which includes Cibolo’s ETJ and non-annexation agreement areas. The city’s population is approximately 25,000. The community is a zoned city with the following zoning acreage being assigned to properties:

1. Commercial zoned properties (C-1, C-2, C-3, and C4).	2,206.95 acres
2. Single family residential zoned properties (SF-1, SF-2, and SF-3).	4,835.92 acres
3. Planned Unit Developments zoned properties (PUD).	<u>469.06 acres</u>
Total Acres	7,511.93 acres

The City’s Planning and Zoning Commission along with the City’s Planning & Engineering Department is doing a fantastic job in carrying out their respective duties. There are several residential developments under way and the city has approximately 4,457 approved residential platted lots. Staff anticipates an additional 1500 homes could occur in this region within the next three to five years. Please see Exhibit “A”.

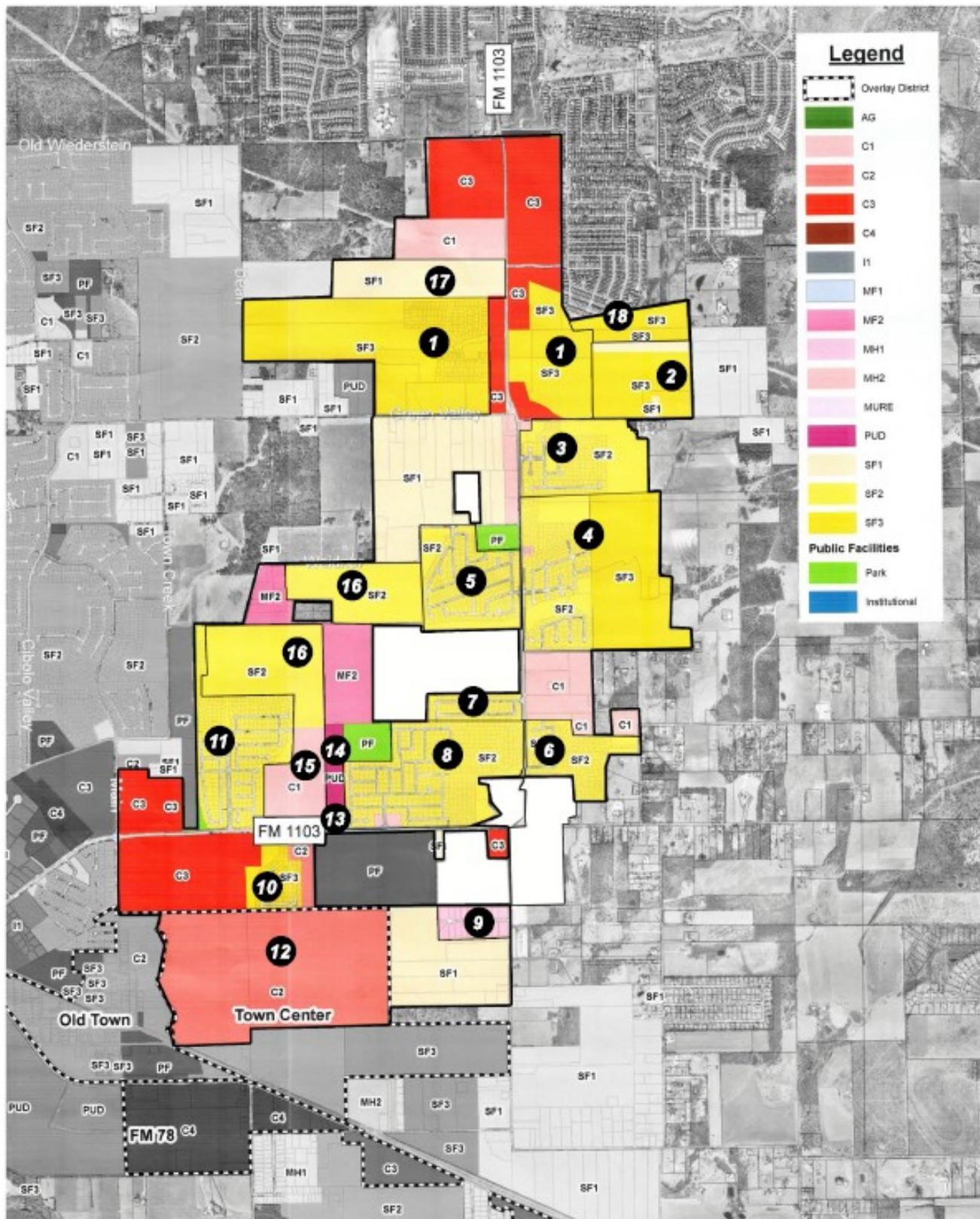
City of Cibolo Estimated Population Growth by 2020



In an interview with Dr. Gibson, Superintendant of Schertz-Cibolo-Universal City ISD, I attempted to learn what future plans they had for adding school facilities north and east of F.M. 1103. The reason for this question was to attempt to determine if there might be a reduction in vehicle trips requiring access to F.M. 1103 to attend school facilities west of F.M. 1103.

What we learned was those students living north and east of F.M. 1103 in the proposed subdivisions will be attending either Steele High School, Dobie Intermediate, or the new elementary school on Green Valley Road and/or Sippel Elementary. The school district indicated they anticipate the building of an intermediate school on Green Valley Road, west of the new elementary school, within the next five to seven years depending on funding and Board action. SCUC ISD has also acquired a future school site within the Nor-Tex development for an elementary school and anticipates this school not opening for the next seven to ten years (2021/2024) depending on student population, funding and Board approval. This proposed site is within the City of Schertz.

Zoning Classifications



Residential Lots

FM 1103 TRAFFIC STUDY

Existing Subdivisions along FM 1103					
Subdivision Name	Zoning	Acreage	Total Lots	Permitted lots	% Remaining
1 Turning Stone	SF-3	236	757	259	66%
2 Landmark Pointe	SF-3	74	285	28	91%
3 Heights of Cibolo	SF-2	89	396	212	47%
4 Saddle Creek Ranch	SF-3	225	811	446	45%
5 Gatewood	SF-2	104	366	329	10%
6 Cibolo Vista	SF-2	68	343	180	48%
7 Stonebrook	SF-2	25	141	141	0%
8 Cibolo Valley Ranch	SF-2	162	775	748	4%
9 Cibolo Tolle MHP	MH-1	23	21	21	0%
10 Town Creek Village	SF-3	23	123	123	0%
11 Buffalo Crossing	SF-2	119	439	374	15%
			1,148	4,457	30%

Proposed Subdivisions along FM 1103					
Proposed Subdivision Name	Current Zoning	Proposed Zoning	Acreage	Proposed lots	% Remaining
12 Gilbert Tract	C-2	PUD	255	642	100%
13 Knights Crossing	PUD (C-1)		2		100%
14 Knights Crossing (24 DUA)	PUD (MF-2)		18	324	100%
15 Koehler Tract	C-1		50		100%
16 Koehler Tract	SF-2		160	320	100%
17 Foxbrook	SF-1	SF-2 & C-3	63	190	100%
18 Hausman/HLH	SF-3	SF-3	34	86	100%
			582	1562	100%

Undeveloped tracts along FM 1103					
Maximum Development (Dwelling Unit per Acre)	Zoning Map	Current Zoning	Approximate Acreage	Possible lots	% Remaining
75% Lot Coverage		C-3	300		100%
70% Lot Coverage		C-2	10		100%
70% Lot Coverage		C-1	100		100%
2 DUA		SF-1	240	480	100%
24 DUA		MF-2	72	1728	100%
Non-Annex Agreement/ETJ		N/A	213		100%
			935	2208	100%

	Acres	Lots
TOTAL	2,665	8,227

Project #	PROJECT	Estimated Cost	DESCRIPTION	Funding Source	Land Acquisition
	Roadway Improvements				
A-1	Stonebrook@FM1103	\$150K	Install right turn/deceleration lane and dedicated left turn bay.	City, Others	NA
A-2	Gatewood Bay/Saddle Spoke	\$250K	Install right turn/deceleration lane and dedicated left turn lane. Note: Needs to be installed on both sides.	City, Others	NA
A-3	FM1103 @ IH35 Service Road	\$175K (0)	Install dedicated right turn lane at FM1103 and IH35 feeder to aid in alleviating congestion on FM1103.	TBD – City of Schertz	\$20K
A-4	FM1103 @ Coy Lane	\$150K (0)	Install deceleration/right turn lane and dedicated left turn lane.	Developer Saddle Creek Ranch 7-9	NA
A-5	FM1103 @ Cibolo Drive	\$180K	Install deceleration /right turn lane.	City, Others	NA
A-6	FM1103 @ Main Street	\$300K * (\$100K)	Expand intersection and upgrade traffic signal. Widen FM1103 to 4 lanes and widen Main Street on either side.	2014 Bonds/Developer Driven HEB – Comm Dev	\$15K
A-7	FM1103 @ Wiedner	\$150K	Install right turn/deceleration lane for Wiedner Road.	City, Others	\$15K
A-8	FM1103 @ Green Valley Road	\$250K * (0)	Re-align two segments of Green Valley Road and provide for left/right turn lanes.	Developer – PIA	NA
A-9	FM1103@ Orth	\$150K (\$75K)	Install right turn/deceleration onto Orth Road.	City, Others Catalano – Comm Dev	\$15K
A-10	FM1103 @ Schlather Park	\$80K	Expand driveway to Schlather Park and construct right turn/decel lane.	City	NA
A-11	FM1103@ Rodeo Way	\$225K * (\$115K)	Realign Rodeo Way with Steele H.S. entrance. Roadway is offset and impedes traffic flow.	City, School	NA
	FM1103 @ Town Creek Way	\$50K	Install right turn/deceleration lane for Town Creek Way.	City, Others	NA

* Does not include cost of traffic signalization

Estimated Cost to Construct:	\$ 2,110,000	<u>City Cost</u> \$ 860,000	<u>Developer/Others</u> \$ 1,250,000
Estimated Acquisition Costs:	\$ 65,000	\$ 65,000	\$ 0
Grand Total	\$ 2,175,000	\$ 925,000	\$ 1,250,000

Project #	PROJECT	Estimated Cost	DESCRIPTION	Funding Source	Land Acquisition
Traffic Signals					
B-1	Traffic Signal – FM1103 @ Green Valley Road	\$250k to \$300k (0)	Install traffic signal and luminaries at Green Valley Road and FM1103.	Developer Funded through PIA	NA
B-2	Traffic Signal – FM1103 @ Orth Road	\$250k to 300k (\$50-75K)	Install traffic signal and luminaries at Orth Road and FM1103.	TBD- Possible PIA with Foxbrook and cost sharing with TXDOT	\$12K
B-3	Traffic Signal- Fm 1103 @ Coy Lane	\$ 250k to 300k (\$50-75K)	Install traffic signal and luminaries at Coy Lane and FM1103.	TBD- Possible PIA with Saddle Creek Ranch	\$12K
B-4	Traffic Signal – FM1103 @ Wiedner Road	\$250k to 300k	Install traffic signal and luminaries at Wiedner Road and FM1103.	City, Others	\$8K
B-5	Traffic Signal – HEB @ FM1103	\$ 250k to 300k (0)	Install traffic signal and luminaries at FM1103 in front of HEB development.	HEB	NA
B-6	Traffic Signal- FM1103/ Haeckerville Extension (Steele HS) secondary entrance	\$ 250k to 300k (\$50-75K)	Install traffic signal and luminaries at FM1103 at secondary entrance to Steele H.S.	TBD- Possible TIA requirement for school expansion or developer driven.	\$12K
B-7	Traffic Signal FM1103 @ Guadalupe Drive	\$500k	Install traffic signal and luminaries at FM1103 and Guadalupe Drive. ROW and drainage issues and widening of road required.	City, Others	NA
	Traffic Signal Enhancements FM1103 @ Rodeo Way	\$250K - \$300K (\$100-150K)	Update traffic signal and pedestrian crossing and provide for additional luminaries at signal at primary entrance to Steele H.S.	City, School, Others	NA
	Traffic Signal Enhancements FM1103 @ Main Street	\$250K - \$300K (\$100-150K)	Update traffic signal and pedestrian crossing and provide for additional luminaries at signal at Main Street.	City, Others Comm Dev	\$8K

Estimated Cost to Construct:	\$ 2,900,000	<u>City Cost</u> \$ 800,000	<u>Developer/Others</u> \$ 2,100,000
Estimated Acquisition Costs:	\$ 52,000	\$ 20,000	\$ 32,000
Grand Total	\$ 2,952,000	\$ 820,000	\$ 2,132,000

PROJECT	Estimated Cost	DESCRIPTION	Funding Source	Land Acquisition
Pedestrian/Bicycle Safety				
Sidewalks – Main Street to Steele H.S.	\$60K +\$90K (bridge)	HEB to install sidewalks from Main to Town Creek West Crossing. City to install sidewalks from Town Creek East to entrance to Town Creek subdivision. LDS church to install sidewalk from Town Creek entrance to Steele H.S. access drive. SCUCISD to install sidewalks along FM1103 frontage to Rodeo Way.	Developer, SCUCISD, City Funded	\$ 25K
Sidewalks- Cibolo Valley Ranch	\$180K	Cibolo Valley Ranch	City, Others	NA
Sidewalks - Stonebrook	\$18K	Stonebrook	City, Others	NA
Sidewalks - Gatewood	\$45K + \$90K (bridge)	Gatewood	City, Others	NA
Sidewalks – Saddle Creek Ranch	\$92K+ \$90K (bridge)	Saddle Creek Ranch	City, Others	NA
Sidewalks – Buffalo Crossing	\$38K	Buffalo Crossing	City, Others	NA
Sidewalks – Cibolo Vista	\$35K	Cibolo Vista	City, Others	NA
Sidewalks – Heights of Cibolo	\$42K + \$90K (bridge)	Heights of Cibolo	City, Others	NA
Sidewalks – Turning Stone	\$66K (0)	Turning Stone	City, Others Comm Dev	NA
Sidewalks – Mesa @ Turning Stone	\$84K (\$12K)	Mesa @ Turning Stone	City, Others Comm Dev	NA
Sidewalks – Foxbrook	\$25K (0)	Foxbrook	City, Others Comm Dev	NA
Sidewalks – to Schlather Park	\$30K + \$90K (bridge)	Sidewalks along north side of FM 1103 from Main Street to Schlather Park.	City, Others	\$12K
Sidewalks – Undeveloped Tracts	\$250K + \$180K (bridges) (\$25-40K)	Undeveloped Tracts – Koehler Tract, Zingerle tract, Voight Tract, Parker tract, Catalano tract, etc. (Not all inclusive.)	City + Developers	\$60K

Estimated Cost to Construct:	\$ 965,000 + \$ 630,000 = \$ 1,595,000 (bridges)	City Cost \$ 982,000	Developer/Others \$ 613,000
Estimated Acquisition Costs:	\$ 97,000	\$ 45,000	\$ 52,000
Grand Total:	\$ 1,692,000	\$ 1,027,000	\$ 665,000

Short and Mid Term Observations:

In studying the current condition of F.M. 1103, the following improvements should be considered by the City in conjunction with other stakeholders. These recommended improvements in total will require a large investment by the City along with others who are willing to address the F.M. 1103 mobility challenges. If implemented, these improvements will not be undone once the road is re-routed and extended. Therefore, the City is not at risk with this initial investment.

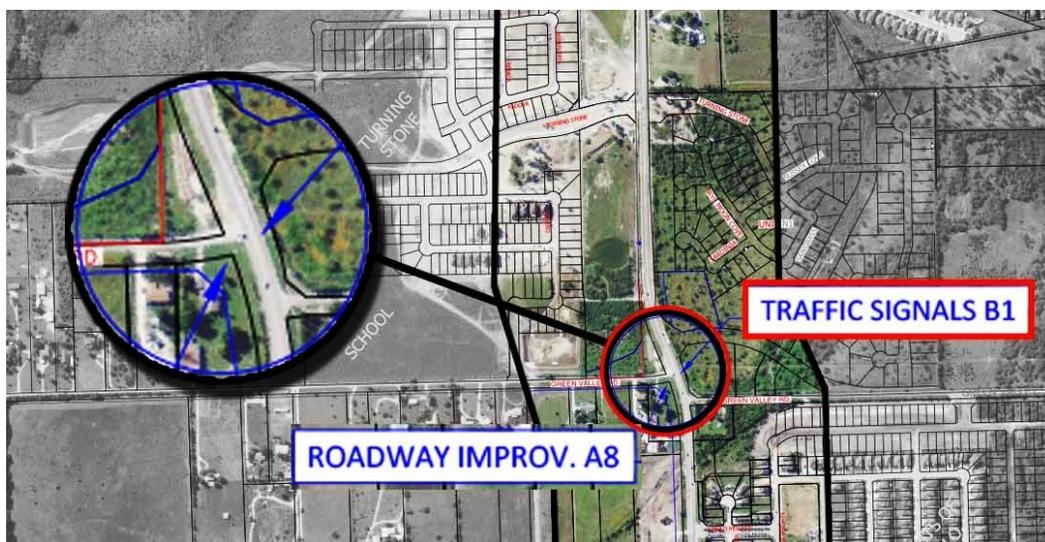
Short Term: (3 to 5 years time frame)

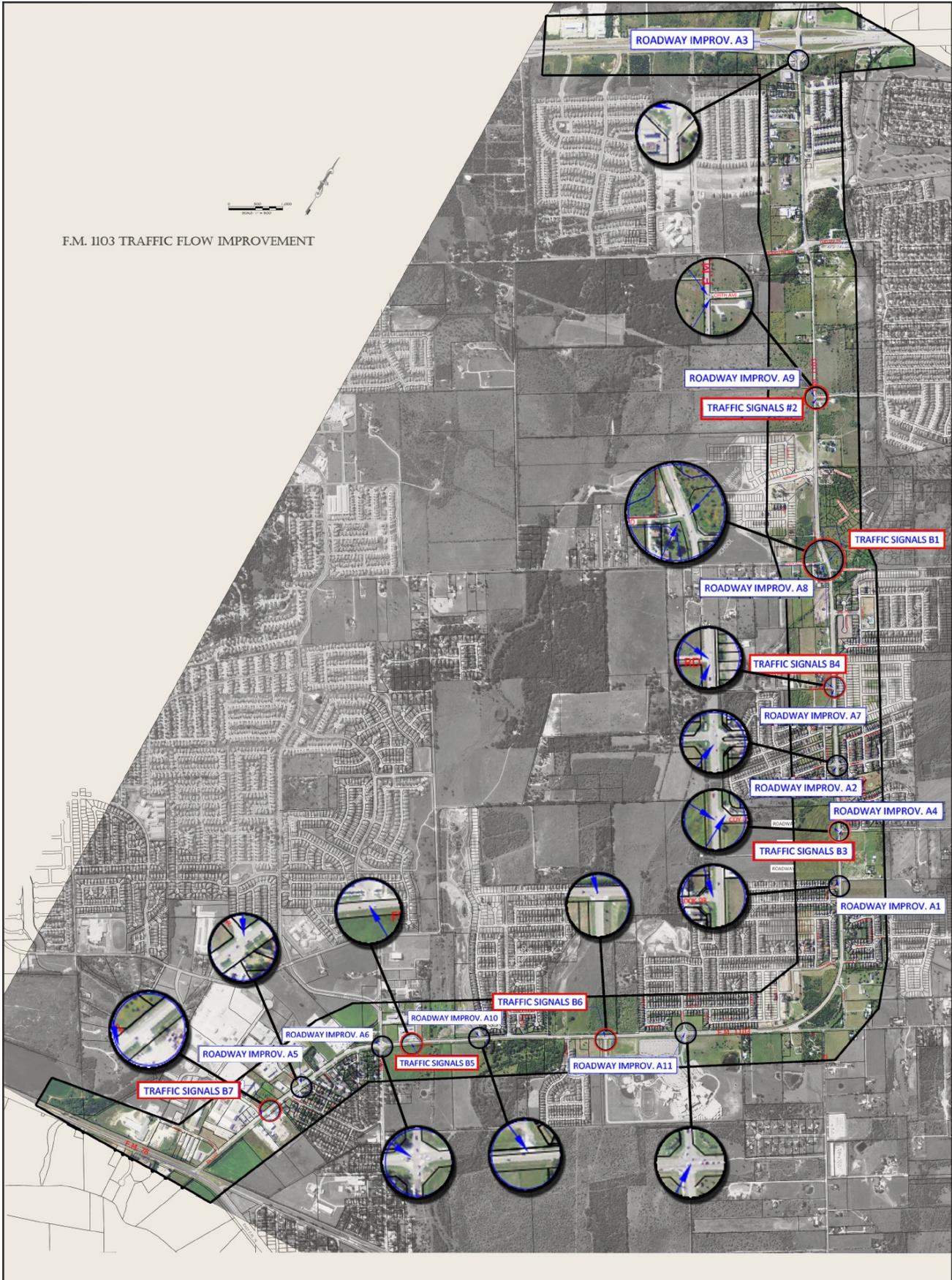
The construction of acceleration and deceleration lanes along with right turn lanes and the addition of left turn lanes and placement of traffic signals at several four-way intersections is recommended to address the short to mid term road improvements along F.M. 1103. Please see Exhibits “B” and “C”. The estimated cost associated with this recommendation would be approximately \$ 5,127,000.

Pedestrian and bicycle accommodation - Currently, F.M. 1103 has no facilities available for safe use by pedestrians or bicyclists. The lack of sidewalks, bicycle lanes, and crosswalks not only endangers the safety of pedestrians and bicyclists, it also potentially affects flow of traffic on the roadway as vehicles must change lanes, decrease speed, or brake suddenly to avoid collisions with pedestrians and bicyclists. Please see Exhibit “D”. The estimated cost associated with this recommendation would be approximately \$ 1,692,000.

Total estimated cost of recommended improvements: \$ 6,819, 000.

Example





Mid Term: (5 to 10 years time frame)

The recommended mid term improvements to F.M. 1103 would consist of the City and others to construct the realignment of F.M. 1103 from Brite Road to S.H. 78 as two lanes with a raised median, shoulders and bridge constructed over Country Lane, Union Pacific Railroad tracks and S.H. 78. The estimated cost associated with this recommendation would be approximately \$ 17M. If the City were to implement this improvement on its own, we estimate a 9.9 cent tax increase would be needed.



Long Term Recommendation:

The proposed long term improvements recommended for F.M. 1103 will require collaboration and a firm commitment from others to fund the improvements. In order to move forward, this contemplated project will require financial assistance from the State of Texas Department of Transportation, Guadalupe County, Federal support, and the City of Cibolo. The estimated cost associated with this recommendation would be approximately \$ 96M.

The long term solutions are:

- Add additional driving lanes to the re-routed section of F.M. 1103. (\$ 25.1M)
- Pursue extending F.M. 1103 from S.H. 78 south to I-10. (\$ 70.9M)

The most expensive and most time consuming effort will be the re-routing and extension of F.M. 1103 starting at Brite Lane to S.H. 78 and then on to I-10. This effort will require the outside assistance of an experienced engineering firm capable of building alliances to bring various stakeholders together for a common purpose. This development stage will also in all likelihood require the project be done in phases over several years. The steps which follow may require assistance from a consultant:

- Coordinate with officials from the City of Schertz to discuss the proposed FM 1103 Mobility Project and seek their commitment to make road improvements within their city limits along this corridor back to I-35.
- Pursue commitment from San Antonio TXDOT staff to implement Cibolo's FM 1103 Mobility Project including primacy and funding participation.
- Pursue commitment from Alamo Area Metropolitan Planning Organization (AAMPO) to secure their support and some level of funding.
- Meet with Alamo Area Council of Governments (AACOG) to seek support and grant funds.
- Meet with Guadalupe County officials to secure their support and funding participation.
- Meet with Comal County officials to discuss the proposed implementation by Cibolo of the FM 1103 Mobility Project to seek their support and funding participation.
- Meet with Texas State Representative John Kuempel to discuss the proposed implementation by Cibolo of the FM 1103 Mobility Project and secure his pledge to seek funding from the State of Texas.
- Meet with Texas State Representative Doug Miller to discuss the proposed implementation by Cibolo of the FM 1103 Mobility Project and secure his pledge to seek funding from the State of Texas.
- Meet with Texas State Senator Donna Campbell to discuss the proposed implementation by Cibolo of the FM 1103 Mobility Project and secure her pledge to seek funding from the State of Texas.
- Meet with U.S. Congressman Ruben Hinojosa to discuss the proposed implementation by Cibolo of the proposed FM 1103 Mobility Project and secure his pledge to seek funding from the State of Texas.
- Others.

FM1103 – Proposed Long Term Improvements

PROJECT	Estimated Cost	DESCRIPTION	Funding Source
New Roadways/Reroutes Impacting Traffic on FM 1103			
FM1103 I-35 to FM78	\$ 17.0M * \$ 42.1M	Reroute FM 1103 per the FTP to FM78	TBD
FM1103 FM 78 to IH-10	\$ 70.9M	Extend FM1103 to IH10 per FTP	TBD
Total Estimated Cost to Construct:		\$ 87.9M \$ 113M	

* Assumes City builds and re-routes a portion of F.M. 1103 to F.M. 78 in accordance with TxDOT MPO application model. If this road improvement does not occur, then the City should expect the re-routing to cost approximately \$ 42.1M.

Cost Comparison 2007 to 2013

PROJECT	Program Mgmt. (3-4%)	Advance Project Development (3%)	Design-PS&E (7.5%)	ROW	Utility Coord.	Construction Management (9-10%)	Construction	Total Project Cost
Report Costs from 2007								
FM 1103 IH-35 to FM 78	\$ 1.3M	\$ 1.1M	\$ 2.8M	\$ 4.0M	\$ 1.5M	\$ 3.7M	\$ 36.9M	\$ 51.3M
FM 1103 EXT. FM 78 to IH-10	\$ 1.8M	\$ 1.6M	\$ 3.9M	\$ 6.0M	\$ 5.0M	\$ 5.2M	\$52.1M	\$ 75.6M
								\$ 126.9M
Updated Costs using TxDOT 2013 Costs								
FM 1103 IH-35 to FM 78	\$ 1.1M	\$ 0.9M	\$ 2.3M	\$ 3.0M	\$ 1.5M	\$ 3.0M	\$ 30.3M	\$ 42.1M
FM 1103 EXT. FM 78 to IH-10	\$ 1.7M	\$ 1.4M	\$ 3.6M	\$ 5.0M	\$ 4.0M	\$ 4.8M	\$ 48.3M	\$ 68.8M
Totals	\$ 2.8M	\$ 2.3M	\$ 5.9M	\$ 8.0M	\$ 5.5M	\$ 7.8M	\$ 78.6M	\$ 110.9M

* Footnote: Cost comparison prepared by Raba Kistner Engineer

Potential Funding Options:

- Partnerships with other municipalities and counties.
- Public Private Partnerships.
- Roadway Impact Fees.
- Tax Increment Reinvestment Zone (TIRZ).
- TxDOT Pass-Through Financing Program.
- Advanced Transportation District Program.
- Federal and State Loans and Grants such as Transportation Investment Generating Economic Recovery Grants (TIGER).
- State Infrastructure bank loan.
- General obligation bonds, revenue bonds, and certificates of obligation.
- Special Legislation that enhances the ability of Cibolo to fund the project.

Tax Rate Example:

\$ 20M	.1162 cents on tax roll
\$ 17M	.0988 cents on tax roll
\$ 12M	.0697 cents on tax roll
\$ 10M	.0581 cents on tax roll
\$ 5M	.0290 cents on tax roll

* Footnote: See Exhibit “E”

Potential options to consider, as a means to slow down the pace and size of residential development along F.M. 1103 between IH-35 and S.H. 78:

These options should be carefully vetted and discussed with all interested parties, including a legal review, prior to any policy adoption.

1. The City Council could adopt a policy directing the Planning and Zoning Commission and City Staff to not process zoning applications which would request a zoning change from a commercial or industrial designation to a residential zoning designation adjoining F.M. 1103.
 - a. All rezoning amendments along F.M. 1103 must be in accordance with the Future Land Use Plan.
 - Permanent zoning request of Single-Family Residential or a Zoning change from Commercial to Residential must first obtain a Council approved amendment to the Future Land Use Plan reflecting the proposed use.
 - b. In the event the City desires to allow down-zoning of a commercial piece of property, to include a combination of commercial and residential development or a PUD, then in this circumstance the City will require that the commercially zoned property be developed first, prior to any residential development occurring.
2. Amend the City's building and development rules and regulations to not allow the zoning designation of SF-3 along or within 1000 linear feet of F.M. 1103 in Cibolo, Texas.
3. Implement an F.M. 1103 public safety improvement fee of \$500 per home, effective September 1, 2014, to help pay for infrastructure associated with mobility and safety improvements along F.M. 1103 within the Cibolo city limits. This recommendation should be reviewed by the City Attorney.
4. Consider increasing residential lot sizes from 60 to 65 feet in subdivisions which will require access to or from F.M. 1103 or are within 1,000 linear feet of F.M. 1103.
5. Update City's Comprehensive Plan (Master Plan).

CITY OF CIBOLO, TEXAS
BOND ISSUE SCENARIOS

	30-Sep	Projected Taxable Value
<u>Assumptions:</u>		
3% growth on taxable values	2014	\$ 1,439,071,604
6.5% interest calculation	2015	\$ 1,482,243,752
bonds issued in fiscal year 2017 with initial payment in 2018 fiscal year	2016	\$ 1,526,711,065
	2017	\$ 1,572,512,397
	2018	\$ 1,619,687,769

Level of Bond Issuance	Average annual debt service	Effect on the Tax Rate
\$20,000,000	\$1,787,900.99	\$0.1162
\$17,000,000	\$1,519,715.84	\$0.0988
\$12,000,000	\$1,072,740.59	\$0.0697
\$10,000,000	\$893,950.49	\$0.0581
\$5,000,000	\$446,975.25	\$0.0290