Major Thoroughfare Plan - "The Map"

The Major Thoroughfare Plan (MTP) is a guiding document typically supported with a map of thoroughfare alignments. The MTP document is a long range plan that identifies the location (alignment) and type (function) of roadway facilities that are needed to meet projected long term growth for the San Antonio area. The current San Antonio MTP was developed in 1978, with minor updates to the MTP Map (alignments) occurring relatively often.

This Major Thoroughfare Plan section will also discuss roadway cross sections and guidelines for when and how different facilities should be utilized. These cross sections are identified by the functional classification of the thoroughfares (Figure 7).

Evaluating the MTP

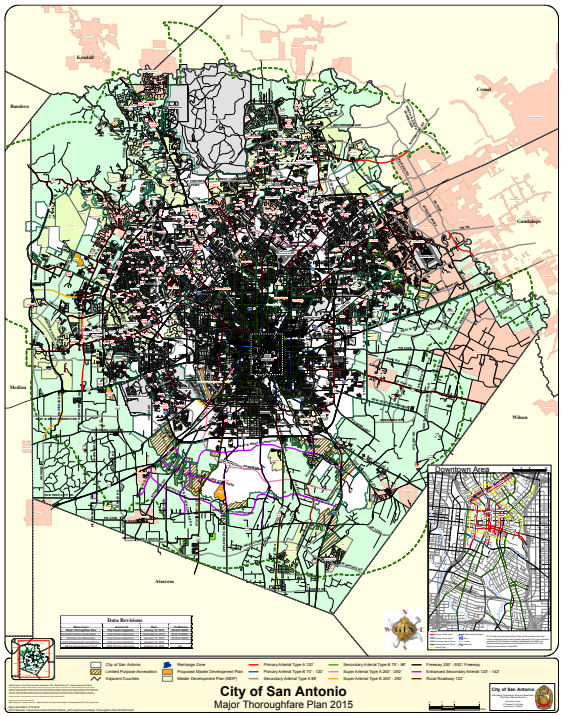
Constraints Analysis

The first step in analyzing the feasibility of the currently adopted MTP was an evaluation of the existing physical constraints. Northwest Bexar County's terrain is partially comprised of 'Texas Hill Country'. This area is characterized by steep slopes, karst features, and environmentally sensitive areas. Creeks and channels wind their way through the region creating obstacles for roadways and consequently the need for bridges or drainage culverts due to water crossings and floodplains. Development patterns show that growth is expected to continue in the northwest, even though this is the area with the most apparent physical constraints.

Man-made constraints were also studied during this review of the MTP. These constraints include such physical barriers as existing developments, railroad crossings, property boundaries, quarries, etc. Man-made constraints can also be challenging to overcome in the design process. Public opinion, political will-power, and costs are among some of the factors that drive down the feasibility of a project (Figure 8 [Constraints Map]).

Alignment Evaluation

Part of the MTP evaluation process included looking at existing alignments (what is already built) and comparing that to the current MTP. Due to platting changes and other factors, there were several locations found on the MTP Map that did not align to what was recently built. These differences were documented and integrated into the proposed MTP. Currently approved master planned developments were also mapped and modifications to the MTP Map were made.



City of San Antonio
Master Thoroughfare Plan 2015

(See Figure 9: Master Planned Development Example]

New roadway alignments and connectivity gaps on the current MTP were assessed. Potential changes were measured against the constraints, modeling results, and how they would factor into the overall network. From this analysis, the current recommendations for changes to the 2015 MTP Map were made.

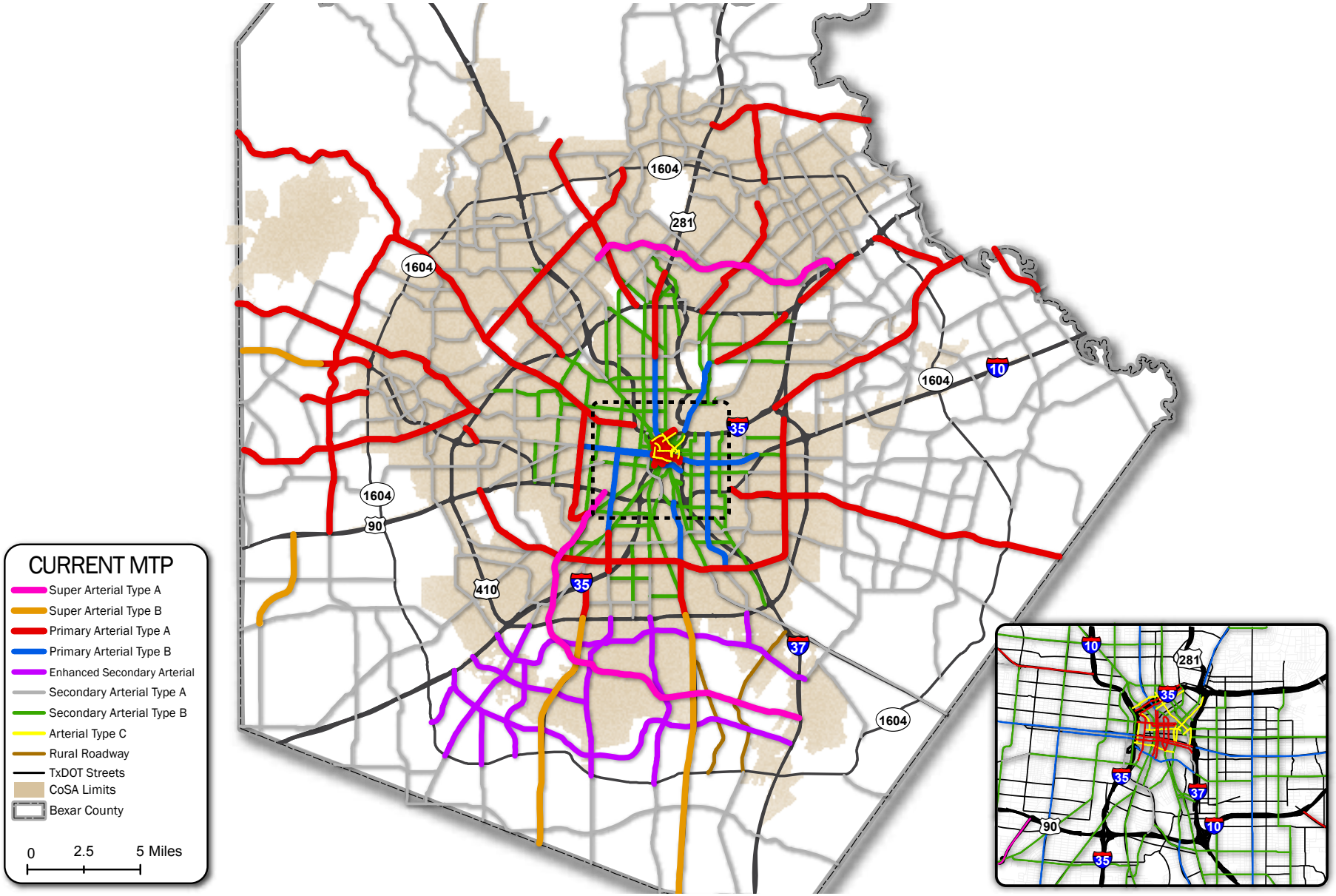


Figure 7: Current MTP

Figure 8: Constraints Map

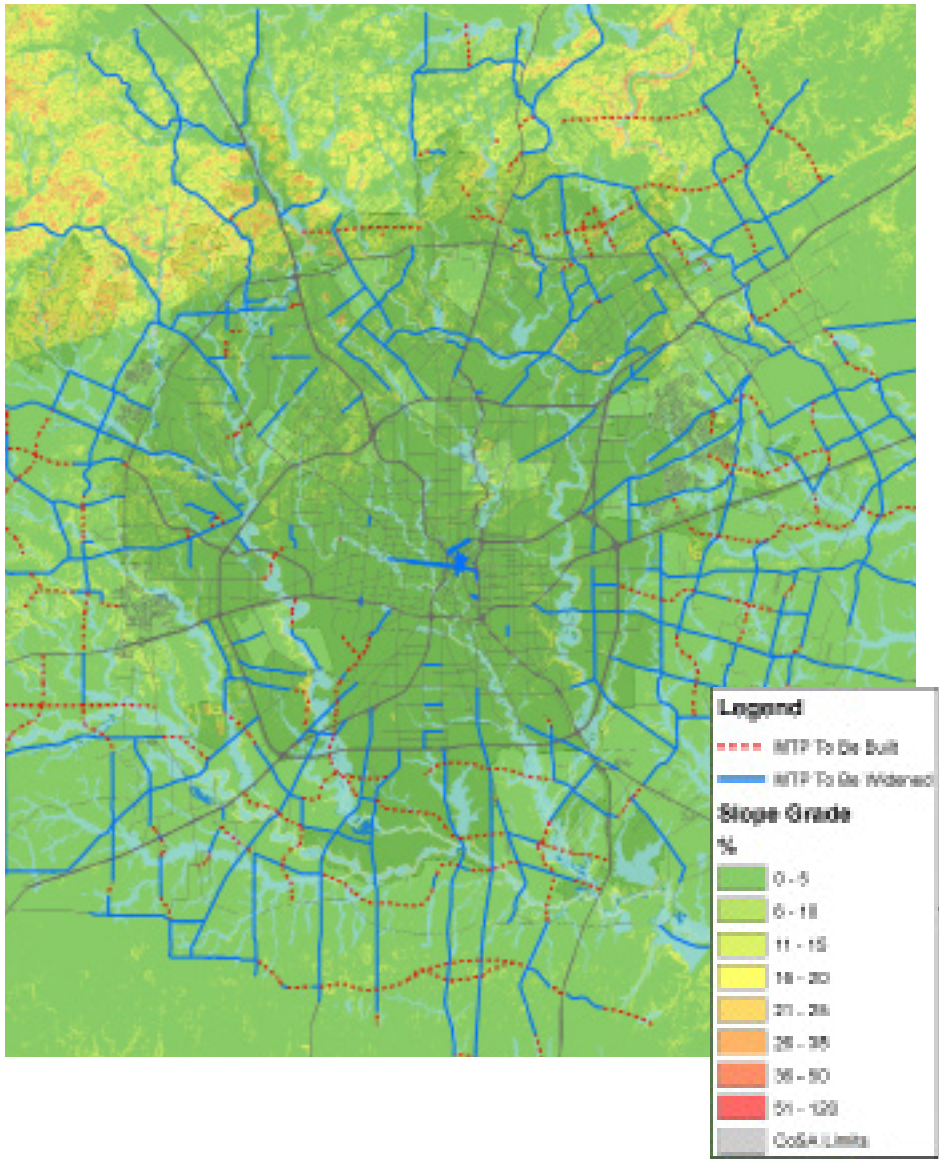
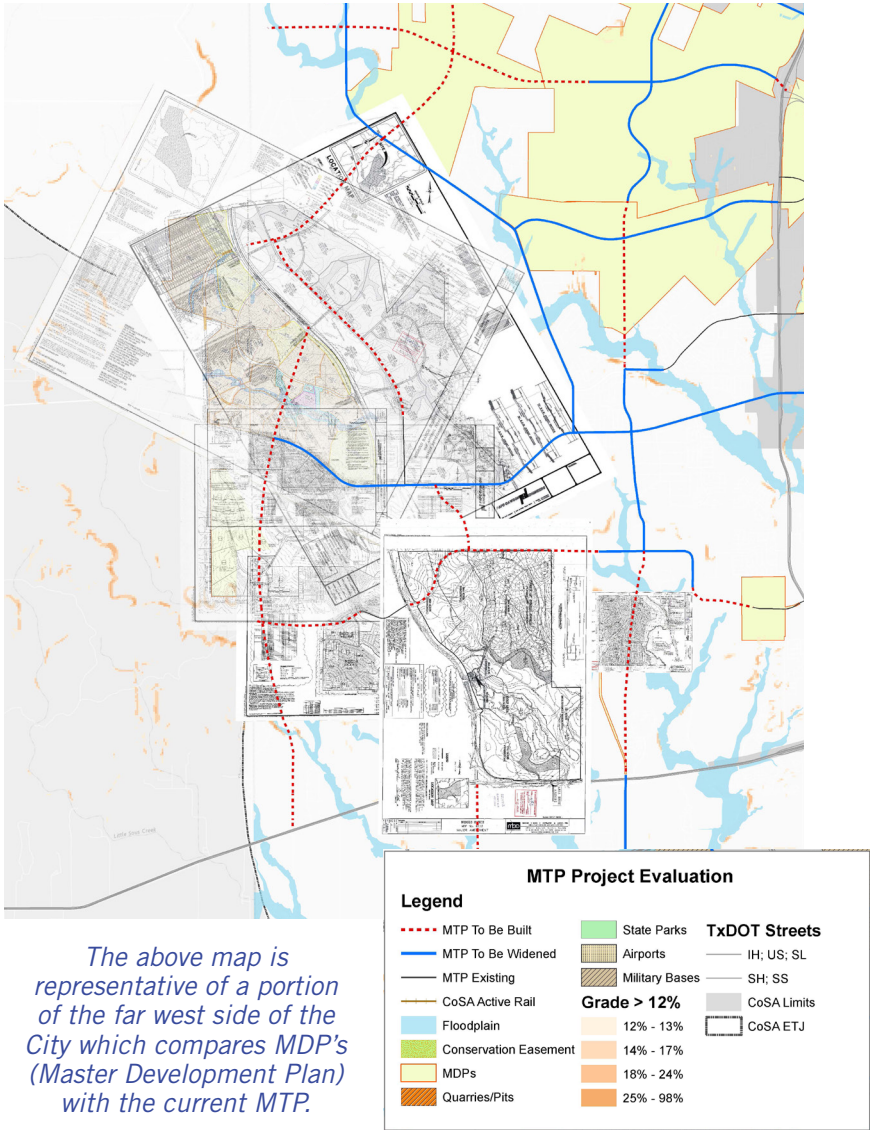
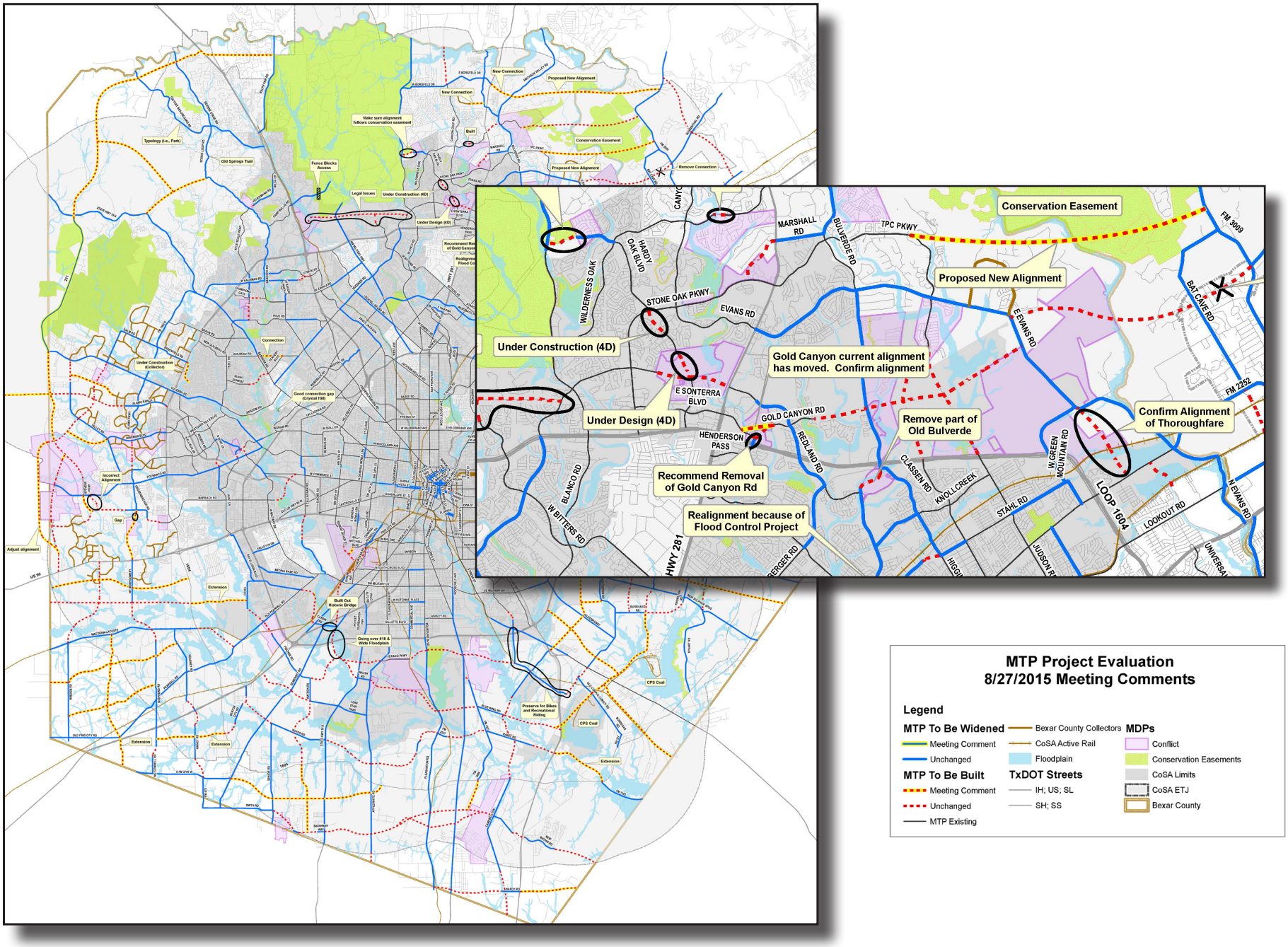


Figure 9: Master Planned Development Example



The above map is representative of a portion of the far west side of the City which compares MDP's (Master Development Plan) with the current MTP.

Figure 10: Stakeholder Comments Map



Functional Classification and Modeling Evaluation

As discussed in the Future Forecasts section of this document, three future transportation network scenarios were developed for the San Antonio region. These scenarios were modeled using the AAMPO's transportation demand model. The V/C ratio (volume-to-capacity) - produced as an output of the model - portrayed the forecasted levels of congestion for the network. Corridors with high levels of congestion were evaluated for capacity issues. Based on these findings, corridors were re-examined to see if they needed additional lane capacity, or in the case of low levels of congestion, if a reduction of lanes would be beneficial to the area.

Based on this evaluation, the functional classification system was reviewed. The existing functional classification is often unclear on the design of the facility that is recommended for a particular segment. Currently, San Antonio has eight major classifications for the region and an additional classification for the downtown area. To try and help minimize the confusion associated with the Major Thoroughfare Plan and associated cross sections, the design of the cross sections (set values for each realm) was evaluated and redesigned. A further review of the existing functional classification system is needed to identify if there are places where additional classifications (such as collectors) could help to supplement the gaps, or altering existing types, would benefit the entire system.

Note, the existing right-of-way ranges provided in the thoroughfare designations are in some instances, large and leave room for inconsistent roadway design. Developing a more regulated structure to the design standards will help identify a clear path to the City and developers. Later in this section, a detailed explanation of how the functional classifications were assigned specific attributes and cross sections will be described (Major Thoroughfare Plan – "Cross Sections and right-of-way").

Stakeholder Input

A technical committee, comprised of City staff from different departments and members of other local agencies that deal with the MTP and are most familiar with ongoing issues, was organized to review the modifications made to the MTP. This technical evaluation committee provided local knowledge and insight. Committee members understand the history of the network – political dynamics, neighborhood opinions, funding constraints, etc. (See Figure 10: Stakeholder Comments].

MTP Committee

The MTP Committee is a group comprised of individuals from City departments and regional transportation agencies. This Committee meets to review and evaluate proposed amendments (changes) to the Major Thoroughfare Plan. Their review takes into account a variety of factors including: feasibility, property boundaries/ changes, cost, historical importance, alternative alignment options, planned and proposed development, etc. They may then make a recommendation for the proposed amendment before it continues to a Planning Commission, Technical Advisory Committee, then ultimately before the City Council public hearing. The proposed new network developed as part of the SA Tomorrow process is displayed in Figure 11 and highlights the recommended changes. These changes should continue to be vetted by the MTP committee, before any changes are brought to the City for approval.

(See Figures 11 and 12: MTP Recommendations]

MTP Map Implementation Strategies (5 Year Action Plan)

- » MTP Update to be evaluated and recommended by MTP Committee.
- » Approved updates carried forward and approved as amendments to the MTP.
- » Establish/Revise policies for reviewing and recommending MTP changes.
- » Amend the UDC to coincide with changes.

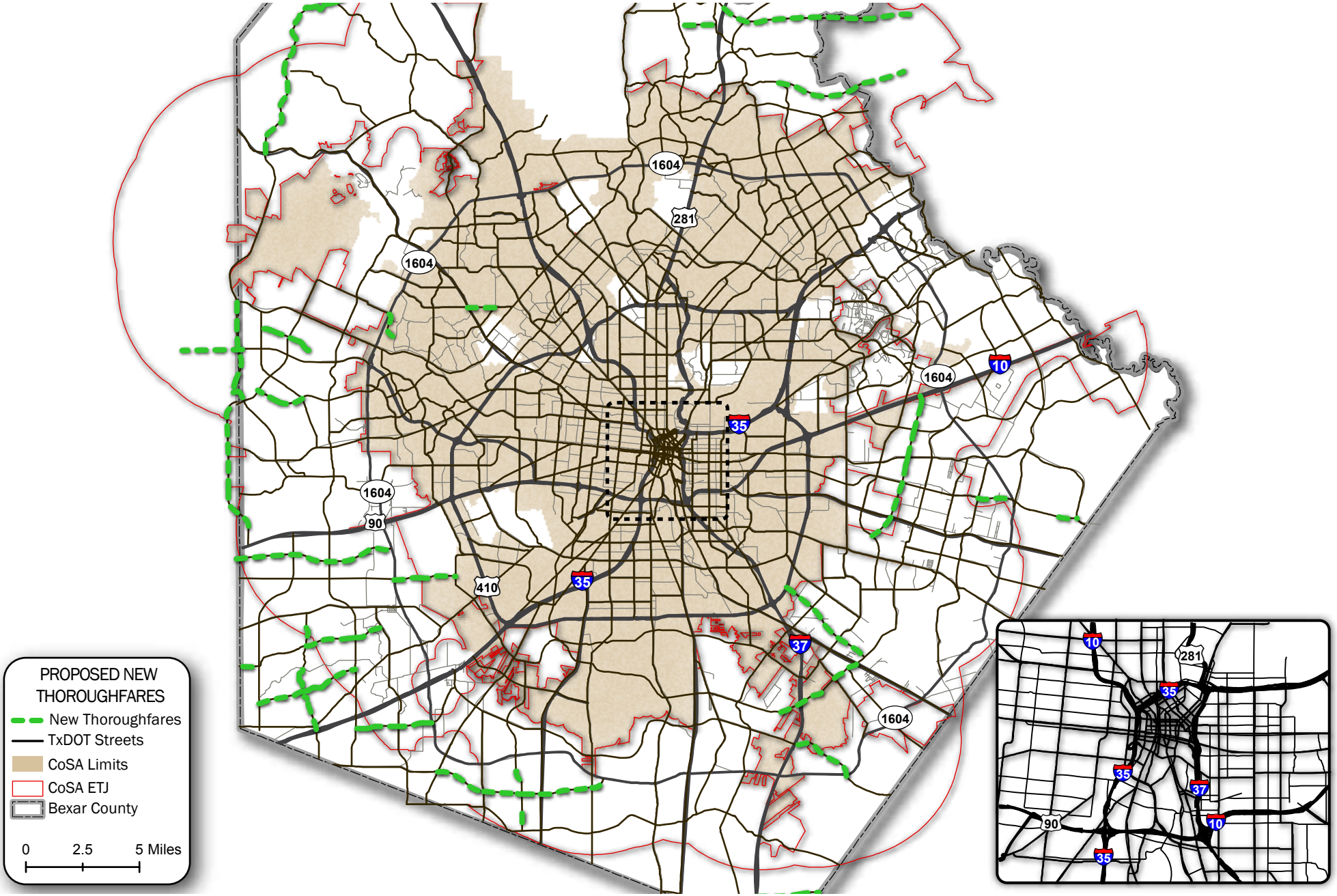


Figure 11: New Roads Only

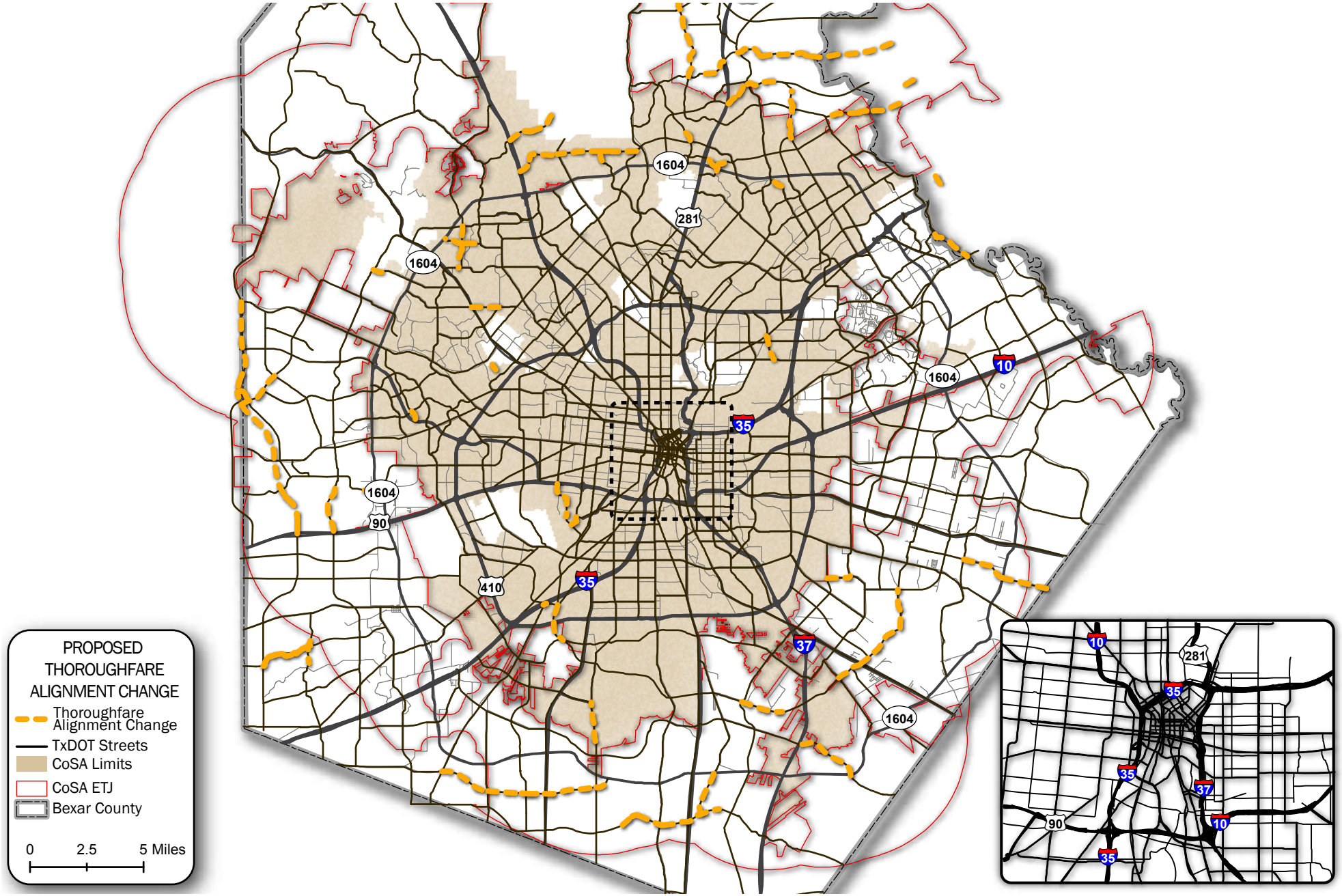


Figure 12: Alignment Changes Only

Major Thoroughfare Plan - "Cross Sections and Right-of-Way"

What is the Current Design Process?

San Antonio's current process for defining the look and feel of a corridor is based on several documents that guide cross section development:

1. 1978 Major Thoroughfare Plan (MTP) document; The MTP document is concise, detailing the functional classification system for San Antonio, right-of-way dimension and other requirements, an explanation of the Major Thoroughfare System, and the systems' two Objectives and Policies. The General Roadway Standards table does not include all roadway classifications that are on the current MTP Map, leading to a lack of consistency;
2. Unified Development Code; The Unified Development Code (UDC) is a guiding document for the City of San Antonio. This Code directs development in the region. The current UDC includes numerous charts, tables, and notes related to design criteria that make it difficult to understand the goals and objectives the City has for the design of transportation facilities. There is not a clear connection between the MTP, the Complete Streets Policy, and the UDC, which would be ideal for future progress and development; and
3. Complete Streets Policy. On September 9, 2011, San Antonio City Council adopted a resolution supporting a Complete Streets Policy to serve as a guiding document. The policy iterates the support for using Complete Streets as a guiding principle in the design, construction, operation, and maintenances of the region's roadway system to promote safe and convenient access for users of all modes of transportation.

The combination of these documents has led to the current cross sections and corresponding right-of-way requirements. Referencing these multiple documents can lead to confusion and result in discrepancy on specific roadways elements. Often times when there are discrepancies, arguments over which document supersedes occur.

The **Unified Development Code (UDC)** supersedes the **MTP** and the **Complete Streets Policy** as the master document, should questions arise in design standards. Some of the goals of the MTP and Complete Streets Policy are not yet implemented within the UDC.

What needs to change?

During the evaluation process, it was necessary to look at the current functional classifications standards. Upon examination of the existing guidelines, it is recommended that the design criteria be restructured to have more defined standards. Four specific cross section design elements were reviewed and recommendations are provided. These four elements are as follows:

1. Update cross sections from right-of-way to right-of-way instead of curb-to-curb;
2. Clearly identify the number of lanes;
3. Provide a connection between the cross sections and other transportation plans; and
4. Update right-of-way requirement.

These four elements (above) led to the recommendation of new cross sections.

In addition three (3) elements were identified that should be further reviewed:

1. Established priorities in constrained right-of-way;
2. Implement context sensitive roadway design policy and develop flexibility through established criteria options; and
3. Revision of current naming convention used for MTP (see recommendation in "The Map" section).

Think Right-of-Way to Right-of-Way

Cross sections can set the stage for how all modes of transportation and design elements are handled within the predetermined Rights-of-Way. Cross sections that relate to thoroughfare classifications are a medium for visually displaying the minimum and desired requirements for each realm of the thoroughfare (context, pedestrian, mode transition, travelway).

Current design options are limited in San Antonio due in part to the lack of design requirements. Without this, it is difficult for City employees and developers to know the different ways they can design streets to fit within the ROW while optimizing multimodal options that benefit the entire network.

Little consideration is currently given to areas beyond the travelway (curb-to-curb). Historically, road construction focuses on one question, "How many lanes?" and proceeds from there to design the roadway. However, cross sections/road design is instead encouraged to think "right-of-way to right-of-way". This means focus should be put into how the land use context plays into the design of the corridor. Road design should be thought of in "Realms". These Realms are Pedestrian, Mode Transition, and Travelway. (See 'Four Realms' Graphic below)

Identify Number of Lanes

The functional classifications in the 1978 MTP document includes a definition for number of lanes. However the additional functional classifications (as seen on the 2015 MTP map) and classifications/types listed in the UDC (Table 506-1) do not list a lane designation. This has historically led to developers using the lowest width of right-of-way listed (typically around 86') and using the majority of said right-of-way for curb-to-curb purposes. Another drawback of this process is that sidewalks are typically located at the back of the curb and constructed with the minimum width - lacking a buffer between the pedestrian and vehicular traffic. Developing a consistent association between number of lanes and classification is essential to moving forward.

Determining the number of lanes will also impact the multimodal aspect of the Major Thoroughfare Plan. The minimum number of lanes a thoroughfare classification requires will influence the other elements/modes of the corridor. Incorporating Multimodal aspects into the design of a thoroughfare works most efficient and effectively when it is premeditated as part of the standards. The influence of which modes are a priority is an important consideration. VIA's long range plans and the Bicycle Master Plan should also be consulted and incorporated as part of the multimodal design of corridors, where their existence will have direct impacts to ROW.

'Four Realms' Graphic

Connections to Other Transportation Framework Plans

The Complete Streets Policy for San Antonio was adopted by City Council in 2011. This policy strives to support complete streets by promoting healthy living and fitness, supporting pedestrian-oriented neighborhoods, enhancing commercial corridors and districts, and maximizing benefits of investment in capital projects. Providing cross section options that allow for multimodal uses further promotes the ability of the City to encourage the goals represented in the Complete Streets Policy.

The UDC is an important tool for influencing development in San Antonio. Applying the same cross-section standards from the MTP to the UDC would create a single design criteria for developers and the City to follow. This would result in more consistent cross section and a unified tool to help achieve the transportation goals established by SA Tomorrow. Amending the UDC to have these cross section approved by City Council is vital in creating consistency through the previously described plans.

A Deeper Look at Right-of-Way

Right-of-way is an essential and primary component of a Major Thoroughfare Plan (MTP). The right-of-way is the building block for which all other elements of the MTP. Right-Of-Way dictates the physical scale of a road and its ability to incorporate design features by detailing the amount of space available. San Antonio currently requires a lot less right-of-way dedication that many comparable Cities. However, in order to provide space for multimodal enhancements, more right-of-way is sometimes necessary.

San Antonio currently faces dynamic issues in regards to right-of-way. Due to the age and historic nature of the City, many of the existing thoroughfares are constrained by limited right-of-way. Areas within Loop 410, especially in the downtown area, are characterized by buildings fronting the roads with little anticipation for gaining additional right-of-way with future redevelopment. These roadways would be considered constrained and would not obtain more right-of-way beyond their existing amount.

Areas of new development are facing a different issue. A lack of consistent design criteria and requirements by governing agencies has created inconsistent thoroughfare design. Wide ranges for thoroughfares designated by the MTP, and a typical push by developers to use the minimum standard, has led to inconsistent ROW. This poses the question of necessity/purpose of acquiring a consistent ROW throughout a thoroughfare based on a developed right-of-way Map. For example, Culebra, transitions from Primary Arterial Type A 120', to Secondary Arterial Type A 86', then back to a Primary Arterial Type A (120'). Even more inconsistent is that right-of-way within the Primary Arterial Type A section in some areas measures only 95', while in the Secondary Arterial Type A section it measures 70'. These roadways would be considered unconstrained and the City could obtain more right-of-way. This right-of-way should be specifically identified in the MTP. The City needs to create an inventory map that identifies constrained ROW (existing) and unconstrained ROW (desired).

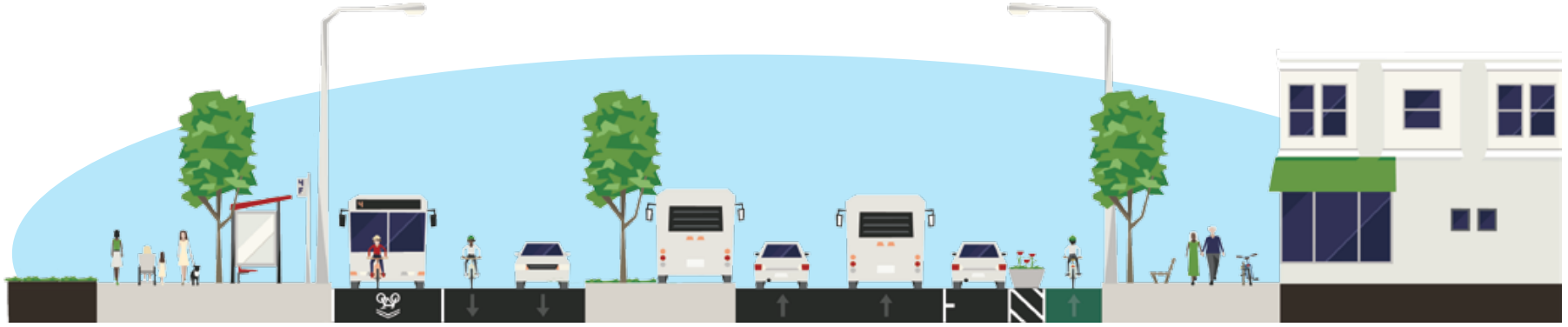
New Cross Sections

Creating a standard for roadway cross sections is a good building block to developing a stronger, more comprehensive MTP. From SA Tomorrow, cross sections were developed in three categories that relate to the (updated) functional classification system. Each of these categories builds upon the previous one, adding more ROW needs by providing space for Multimodal elements.

- » Minimum Existing Cross Section
- » Complete Street (addition of bike facilities)
- » Enhanced Multimodal Cross Section (a Multimodal concept)

Toolbox for Realms

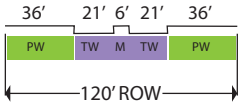
Although consistency of cross sections is vital for an efficient network, achieving this is not always possible. This is especially true in communities such as San Antonio where, due to the age of the City, right-of-way availability is limited in older areas. This requires some flexibility in the cross sections. There is no standard 'one size fits all' approach. The adjoining toolbox shows the different attributes associated with each "Realm". As you can see, some attributes are found in more than one Realm. This allows for some flexibility in right-of-way dedication requirements. (See REALMS ELEMENT TOOLBOX PAGE 6-27)



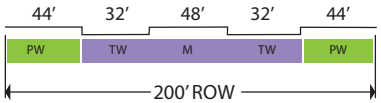
Context	Pedestrian Realm	Mode Transition Realm	Travelway Realm	Mode Transition Realm	Pedestrian Realm	Context Realm
Business/Commercial Residential Industrial Government Public etc.	Stoop Area Yards Building Setbacks Walkways Trees Sidewalk Furniture Driveways Sidewalk Sidepath	Door Zone Walkways Trees Sidewalk Furniture Driveways Curbs Bicycle /Protected Bicycle Lanes Parking Turn Lanes Bus Stops Bulb Outs	Travel Lanes Bus Lanes Bicycle Lanes Center Turn Lane Median Landscaping Pedestrian Refuges Bus Rapid Transit	Door Zone Walkways Trees Sidewalk Furniture Driveways Curbs Bicycle /Protected Bicycle Lanes Parking Turn Lanes Bus Stops Bulb Outs	Stoop Area Yards Building Setbacks Walkways Trees Sidewalk Furniture Driveways	Business/Commercial Residential Industrial Government Public etc.

MINIMUM EXISTING CROSS SECTION

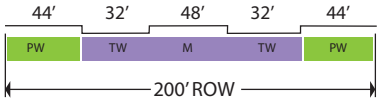
ESA-4-D



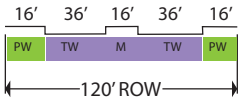
SAA-4-D



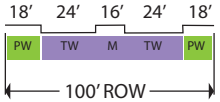
SAB-4-D



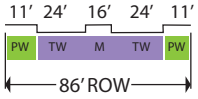
PAA-6-D



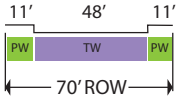
PAB-4-D



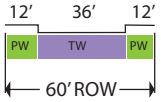
SecAA-4-D



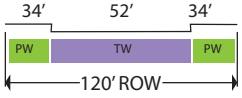
SecAB-4-U



AC-2-U



RR-4-U



COMPLETE STREET CROSS SECTION

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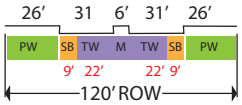
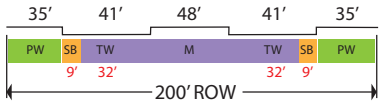
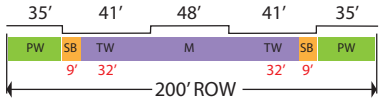


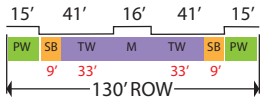
SAA-4-D (SB)



SAB-4-D (SB)



PAA-6-D (B)



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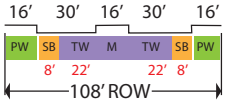

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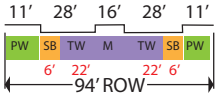

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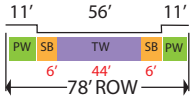

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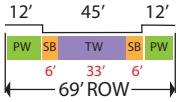

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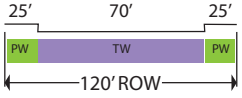
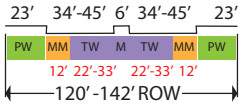


ENHANCED MULTIMODAL CROSS SECTION

ESA-4/6-D (MM)



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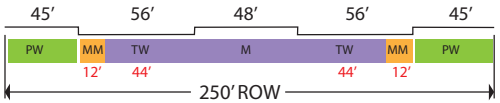

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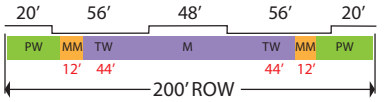

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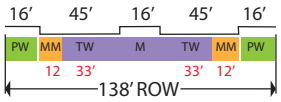
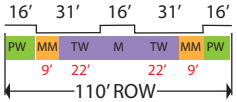


PAB-4-D (MM)



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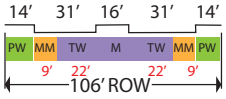

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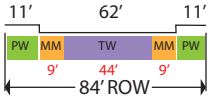
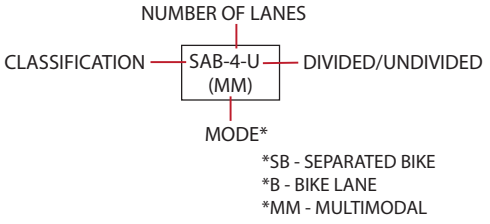


CLASSIFICATIONS:

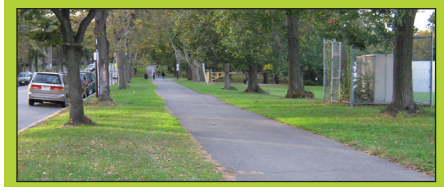
ESA- ENHANCED SECONDARY ARTERIAL
SAA- SUPER ARTERIAL TYPE A
SAB- SUPER ARTERIAL TYPE B
PAA- PRIMARTY ARTERIAL TYPE A
PAB- PRIMARY ARTERIAL TYPE B
SecAA- SECONDARY ARTERIAL TYPE A
SecAB- SECONDARY ARTERIAL TYPE B
AC- ARTERIAL TYPE C
RR- RURAL ROADWAY



REALM ELEMENTS TOOLBOX

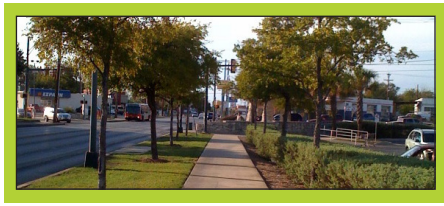
PEDESTRIAN REALM

Sidewalks are recommended to be 5' on a collector with a minimum 3' buffer and 6' on an arterial with a minimum 2' buffer from the street.



A **sidepath** is wider than a sidewalk and recommended to be 10', but could be a minimum of 8' in a constrained environment.

Providing comfortable and aesthetically pleasing **sidewalk furniture** is a way to encourage pedestrians to use and feel safe in the Pedestrian Realm.

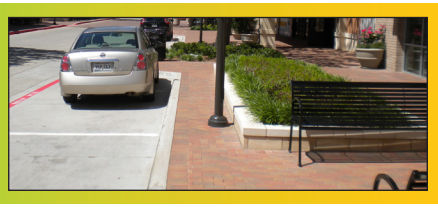


Trees provide shading which is crucial to a friendly pedestrian realm, especially during hot Texas summers.

MODE TRANSITION REALM - PEDESTRIAN

The **walkway** will provide an extra buffer between the travelway and pedestrian realm.

Bulb Outs are used to shorten the distance pedestrians must cross at an intersection, among other uses.



The **curb zone** acts as a buffer, similar to a "door swing". It provides additional right-of-way for the interaction of different modes and users.

Bus Stops in this realm should provide a well-marked and safely lit area for transit users. Where able they should also provide shelter.

MODE TRANSITION REALM - TRAVELWAY

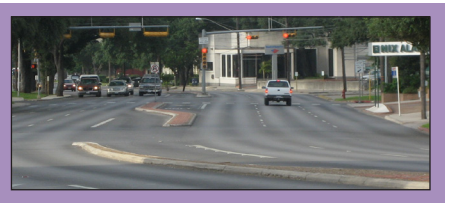
On-street **parking** should provide enough space for "door swing" meaning that the interaction of a parked car does not interfere with other users.

Bicycle/Protected bicycle lanes are on-street facilities that provide a dedicated space for cyclists. They are separated from vehicular traffic by some means.

Turn lanes provide a place for traffic to queue while reducing backup in moving traffic lanes.

Bus only lanes are a dedicated portion of the travelway for Transit. Due to the regular interaction with transit riders, it is regarded as a part of the transitional realm.

TRAVELWAY REALM



Travel Lanes are the primary component of a corridor. Their design should be in harmony with the adjacent land use and preferred modes.

A **median** acts as an access management device, traffic calming, and an aesthetically pleasing element of the travelway.

A **pedestrian refuge** is an area at the center of a roadway which provides a safe place for pedestrians to wait when crossing major or busy corridors.

Bus Rapid Transit does not have as many stops as typical bus service. It's primary purposes is for shorter travel times and has less interaction with the transition realm.

Further Review

Constrained Right-of-Way - Establish Priorities

Many of San Antonio's right-of-ways have been established for over fifty years. Due to this historic right-of-way, challenges are present through constrained available land. Previous MTP updates (where the priority was only the number of lanes) did not take this into consideration, applying functional classifications based only on vehicular capacity needs.

A method that determines what mode is the priority for the corridor is needed. It is important that adequate space is provided to supply the needs of the priority mode. Working within each realm to fully utilize space can help capitalize on the existing roadway. **The City needs to establish a policy for determining what additional mode to the automobile is a priority on a particular roadway.** One tool that is currently available is the City's Complete Street Checklist. This automated spreadsheet helps determine what user should be given priority and what is possible within the available right-of-way in terms of implementing a Complete Street.

An example of the uses found within each Realm is displayed in the Realm Toolbox. Understanding what attributes are associated with each Realm changes the way the roadway is viewed and can improve understanding of how to create more effective and efficient spaces.

Right-of-Way Analysis

San Antonio currently does not have a data set for the existing right-of-way of all the roadways it maintains. Due to the varying right-of-way along corridors, this becomes a particular challenge when trying to identify consistent cross-section options.

If San Antonio is unable to gather this data manually, there is potential for a GIS application to provide a reliable estimate of the right-of-way at 10 foot intervals along corridors. The GIS tool estimates right-of-way width use parcel boundaries (measuring from property line to property line). Not all corridors are good candidates for using this type of GIS application, but it would help San Antonio create an initial database to expand and improve upon.

Implement Context Sensitive Solution Policies

Context Sensitive Solutions are a method of evaluating streets to determine their priority needs based on their context. San Antonio will need to use this type of approach when evaluating which cross-section should be applied to roadways, both new and existing thoroughfares. The recommended process to evaluate the corridor:

- Determine thoroughfare classification and available ROW;
- Identify any agency plans related to the corridor (transit, bike, etc.);
- Identify the land-use context prominent along the corridor;
- Look at traffic counts along the corridor;
- Based on ROW, determine what modes can be accommodated on the corridor; and
- Identify the priority of the user(s) along the roadway by reviewing current demand and future potential of the roadway.

Collectors and Inner Cities:

Like other major metropolitan areas, San Antonio has several enclave cities it surrounds including Alamo Heights, Terrell Hills, Olmos Park, Hollywood Park, Hill Country Village, Castle Hills, Windcrest, Kirby, Balcones Heights, and Shavano Park. These independent Cities are not directly controlled by the City of San Antonio. Coordination with these communities when developing and implementing planned thoroughfares is necessary for smooth transitions of roadways.

Also, there are areas in the current MTP which appear to have "gaps" or missing connections (which would typically be collectors). For example there are gaps in the areas adjacent to US Highway 281 area in between downtown and Alamo Heights.

Streets like St Mary's, Josephine, Mulberry look and act as collectors but are not designated as such on the MTP. This is an issue throughout the City. Many roadways designated as arterials on the MTP are really functioning as collectors.

5 Year Action Plan

- The Current MTP needs to be reviewed by the MTP Committee in light of the recommendations provided in this Multimodal Plan.
- For future changes to the MTP, the MTP Committee needs to complete a thorough evaluation before allowing an alignment to be up- or downgraded, or removed from the MTP. Overall Connectivity and function of the corridor should be considered as part of the evaluation process.
- The City should consider UDC policies that require the construction of collectors by developers as they're subdiving property between arterials. This policy would require connections between arterials in a manner that best suits the City. This approach (in lieu of placing collectors on the MTP Map) allows developers some flexibility with the alignment while improving the connectivity of the overall MTP.