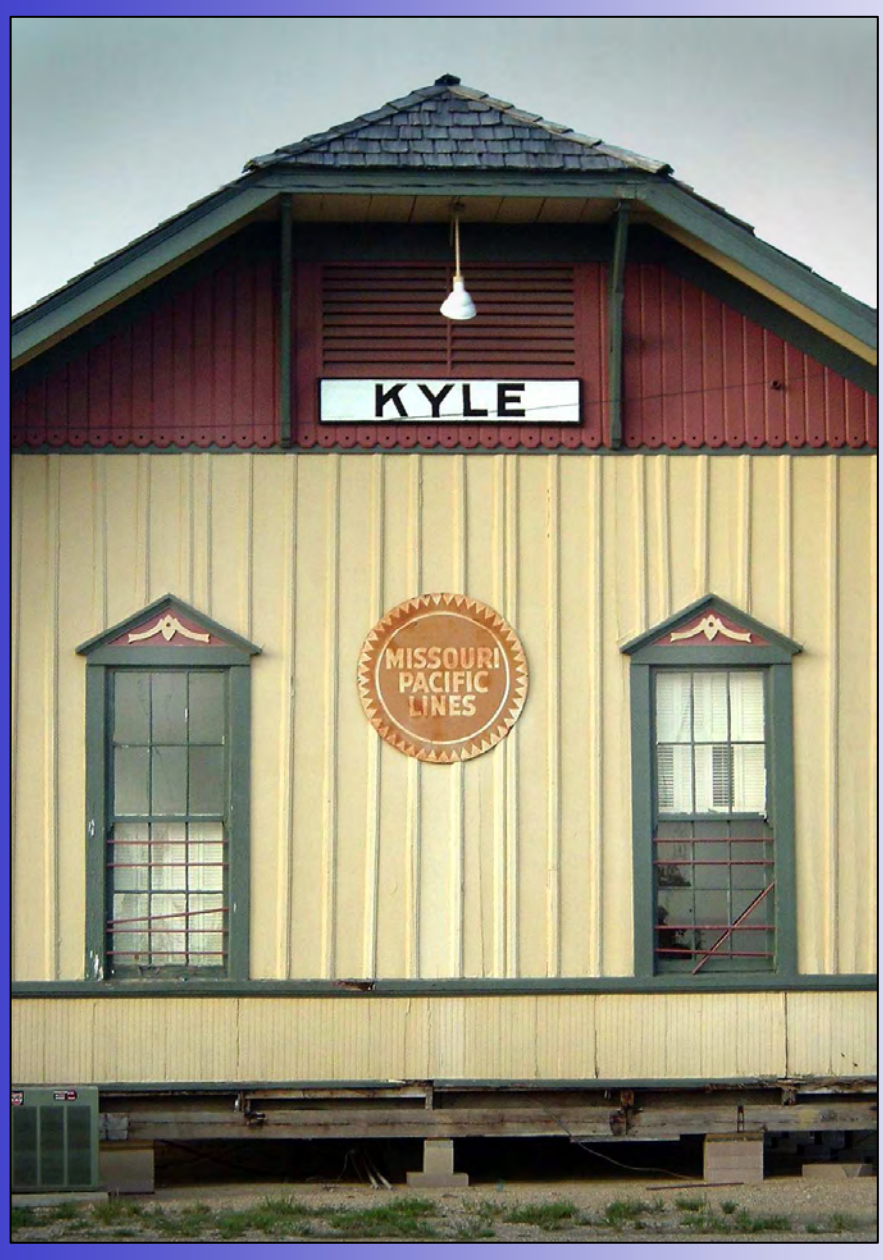
CITY OF KYLE TRANSPORTATION MASTER PLAN



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ENGINEERS
ARCHITECTS
SOLUTIONS

Lockwood, Andrews & Newnam, Inc.
A SUBSIDIARY OF LEO A DALY

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1.0 Introduction

The City of Kyle was established on a 200-acre townsite in 1880, as a stop on the International and Great Northern Railroad, which was constructed that year between Austin and San Antonio. Kyle has since grown and according to census data, is the second-largest city in Hays County, after San Marcos, eight miles to the south.

Unprecedented growth over the past five years has presented the City with an influx of new single-family residences and their supporting retail markets. City records indicate that the current population should be as high as 15,000. This estimate is derived from the issuance of approximately 5000 water meters. The growth is welcomed, but with it comes challenges to the City's transportation infrastructure.

The existing highway network consists primarily of State highways and county roads. The majority of this system is two-lane and uses stop signs to control intersections. IH 35 is the major artery bringing commerce and linking residents to their jobs. It is the major artery of urban growth in the region, extending from San Antonio in the south, through New Braunfels, San Marcos, and Kyle, as well as past Austin to Round Rock and Georgetown in the north.

The current network of roads was never intended to serve suburbanized population densities. Peak hour commuting now causes congestion on the road network. Congestion patterns are characterized by long delays at key overpasses that link IH 35 to residential areas. As retail development catches up to residential growth, traffic congestion patterns will extend to include those routes linking housing to commercial areas and retail centers. The times congestion occurs will spread, to include weekend hours when families take time to shop or attend social activities.

1.1 Study Background and Purpose

This transportation study examines the current transportation system and the impacts of Kyle's growth on that system. It will determine the necessary improvements to that system, and a corresponding implementation plan. This is the first transportation plan for Kyle and is intended to be a starting point to identify the immediate and short-term problem areas and recommend solutions. This plan also takes a hard look at long-term mobility needs for the City and surrounding area, and identifies possible corridors for expansion to a more complete thoroughfare system.

Background

The Federal Aid Highway Act of 1962 made it possible for local governments to become active in transportation planning; it was the first time states and municipalities were required to implement "continuous, comprehensive, and cooperative planning." The Federal Aid Highway Act of 1973 contained the first reference to Metropolitan Planning Organizations, or MPOs.

As a response to "the vastly more complex transportation policy environment in the 1970s," Congress required each urbanized area to establish a Metropolitan Planning Organization (MPO) composed largely of local officials. Congress hoped MPOs would help build regional agreement on transportation investments that would better balance highway, mass transit and other needs and lead to more cost-effective solutions to transportation problems" (North Jersey Transportation Planning Authority, Inc. 2004). The legislation established a process calling for a cooperative, comprehensive, and continuing planning process for all federal transportation programs. This meant that transportation plans needed to obtain the input and approval of all local governments within continuous areas of 50,000 or more persons.

Hays County, including the City of Kyle, grew sufficiently between the 1990 and 2000 Censuses that it has now been designated as "urbanized," and included in the Austin-area MPO, known as Capital Area Metropolitan Planning Organization (CAMPO). CAMPO coordinates federal funding availability for municipalities and counties in its jurisdiction.

In 1991, Congress passed the Intermodal Surface Transportation Efficiency Act (ISTEA). The legislation was intended to give metropolitan areas more control over their transportation system, foster a more integrated planning process, and bring about greater coordination among metropolitan area representatives, the state, and the private sector. Congress hoped that better planning, facilitated by ISTEA's new provisions, would improve local transportation systems. Since ISTEA, states have passed legislation to give MPOs more responsibilities.

Transportation Improvement Plan (TIP)

The Transportation Improvement Program (TIP) is a three-year schedule of all transportation projects, including major streets and highways, public transportation, pedestrian walkways, bicycle facilities, and transportation enhancement projects proposed for federal funding and carried out within the Austin Metropolitan Planning Area. Regionally significant locally funded projects are included as well. Requisite to receiving federal funding, all FHWA and/or FTA supported transportation projects in the Austin Metropolitan Area must be listed in the TIP.

The TIP is one of the federally-mandated duties of the MPO.

Transportation Master Plan (TMP)
A Transportation Master Plan is the basis for a long-range vision of mobility, and it is a document that identifies, compiles, and prioritizes transportation projects for funding and implementation in the service area. It includes road and highway projects, as well as pedestrian and bicycle facilities. It provides the framework for planning and budgeting the City's transportation improvement projects, as well as interfacing with CAMPO's regional plan.

1.2 Goals and Objectives

The preparation of the Kyle Transportation Master Plan (KTMP) was guided by carefully selected goals, objectives and policies to ensure that transportation solutions pursued are appropriate for the City of Kyle. The goals, objectives and policies have been organized to address *both* end result (i.e., the transportation vision) in terms of facilities and services needed and the means required to achieve such ends. In this case, the means address matters of interagency coordination, financial feasibility, and commitment to an implementation program. The goals have been organized into two groups: one that addresses the transportation system and one that addresses the planning process.

The Transportation System

Goal 1: Mobility
The transportation system should offer convenient travel opportunities that will allow people to travel to a variety of places according to the needs of their own lifestyle.

Goal 2: Transportation Performance
The transportation system should provide efficient quantity and quality of service with needed capacity, reasonable speed, convenience, and safety for all users.

Goal 3: Non-Motorized Travel
The transportation system should enhance the quality of life of the Kyle community by providing a system of interconnected and safe bicycle paths, routes, trails, and pedestrian facilities.

Goal 4: Economic Development
The transportation system should support and enhance economic development within the region.

Goal 5: Environmental and Natural Resource Protection
The transportation system should recognize the environmental resources of the region and minimize negative encroachments and disruptions on such areas.

The Planning Process

Goal 6: Interagency Coordination
In conjunction with the transportation plan, a spirit of commitment to interagency coordination and cooperation should be established in the region.

Goal 7: Financial Feasibility
The transportation plan must be financially feasible.

Goal 8: Commitment to Implementation
The transportation plan should be supported by a commitment to implement the recommended improvements according to an identified schedule.

The KTMP carefully considers the challenges and opportunities facing Kyle over the next 20 years, and it recommends goals, objectives, policies and improvements to prepare the city to meet its future transportation needs. The plan identifies a three-phase staging schedule for transportation projects and is intended to provide a framework for decisions on immediate, short, and long-range transportation *and* related land-use activities. In this way, the city can assess the relative importance of the projects and schedule their planning, engineering, and construction as growth takes place and the need for the facilities and improvements is warranted. It also establishes a prioritization of the projects to be included in future Capital Improvement Plans (CIP).

The relationship between transportation and land use is significant and should be recognized more often. Transportation systems and land use patterns have well-documented reciprocal relationships. Growing communities, like Kyle, demand upgraded transportation systems, while improvements to streets, bridges, rail lines, and transit systems initiate changes to adjacent lands. Integrating transportation and infrastructure improvements with the recommendations and programs contained in the KTMP will substantially improve the city by providing enhanced access and mobility for current and future residents and assuring responsible land use decisions.

To properly understand this plan, a series of specific considerations must be recognized. First, expanding employment opportunities in Kyle will be partially based on accessibility to markets. Industrial and major retail developments are sensitive to access to regional and, possibly, interstate markets. This factor emphasizes the importance of connections to and improvements in the arterial and regional transportation system.

Residential growth is spurred by increases in employment opportunities. Home-to-work and home-to-shopping trips are significant. Not only does residential development result in the direct expansion of the local street grid to serve new properties, but it also places demands on connecting collector and arterial routes. The location and estimated levels of housing and employment growth considered in the KTMP were developed in close coordination with city staff, Hays Consolidated Independent School District (HCISD), Kyle Fire Department, Kyle Police Department, local developers' plans where readily available and year 2000 census tract data.

Another area of consideration relates to implementation issues. A key goal of the transportation plan is that it be financially attainable. While it is clear that financial resources available to the city to fund new roadway, traffic signals, transit, bikeway, pedestrian system, and railroad crossing improvements are limited, it was important to show that the elements of the plan are affordable by existing funding sources. Nevertheless, new revenue sources or increased funding from existing sources will become increasingly more important if the city is to leverage local financial resources while insuring that the transportation infrastructure keeps pace with development growth and associated travel demand projections in Kyle.

Another implementation issue that guided plan development was physical feasibility. While the technical work associated with the plan concerned system planning, not design, the location of new facilities or the improvement of existing facilities generally has been screened for physical feasibility. Alignments shown in the plan were modified wherever major negative land-use impacts were identified (e.g., penetration of an existing neighborhood) or impacts on natural resources would be expected. In some instances, this represented a trade-off decision that creates some compromises in the plan. It should be noted that separate engineering studies have yet to be conducted on most of the proposed projects; thus, precise alignments are not suggested in this plan.

There are two distinct objectives that the KTMP is intended to achieve. First, the KTMP is to identify immediate transportation needs and recommend their solution. The immediate action items are to remedy the currently observed congestion in the study area. Second, the KTMP will also identify short term transportation needs and recommend their solution. Short term projects are those that are recognized as imminent due to future congestion anticipated because of planned retail and residential development.

A third objective is to take a cursory look at land development patterns and identify a preliminary thoroughfare network of roads. Thoroughfare roads are a mobility solution consisting of 4 to 6 lanes divided by a raised median. Mobility would be a priority for these corridors. Several mobility enhancing measures in these corridors would be to regulate access through the issuance of driveway permits and limiting openings in the medians. Traffic signals on a thoroughfare system would be interconnected with technology affording the City cost effective traffic signal optimization of throughput.

The plan has also identifies a circumferential loop around Kyle to provide efficient distribution of traffic. The loop would provide a means to access IH 35 and its retail areas from remote locations without having to travel through the center of the City.

Kyle has limited east-west access across IH 35 south of Center Street. The KTMP will investigate opportunity for a new east-west portal south of Center and recommend its location.

At first glance, funding the full transportation plan will require a substantial investment. The KTMP will identify funding needs and present a manageable approach to fund the plan. This effort results in identifying three time frames to develop the system: immediate needs, short-term and long-term. The City is well positioned to completely fund the Immediate needs plan.

1.3 Study Area

The study area is limited to the rapidly developing areas immediately in and surrounding Kyle. The north boundary is limited to Windy Hill, just south of the Cabela's retail location. The east limit is at Kyle's Extra-Territorial Jurisdiction (see definition below). The south limit is at the future location of San Marcos' outer loop, FM 110, and the west limit is at the Blanco River.

> Extra-Territorial Jurisdiction
> Texas law allows municipalities certain powers outside of their city limits, to regulate development in the area immediately outside their city limits. Depending on the city's population, this area may extend anywhere from one to five miles; it is known as the Extra-Territorial Jurisdiction (ETJ). The rationale is that development in areas the city may annex is thus made more compatible with that already in the city. Furthermore, no other city may annex areas in the ETJ without permission, nor can those areas incorporate separately.

The map on the following page illustrates the entire City of Kyle jurisdiction; the city limits are orange and the ETJ is a lighter brown. The surrounding areas outside Kyle are light tan.

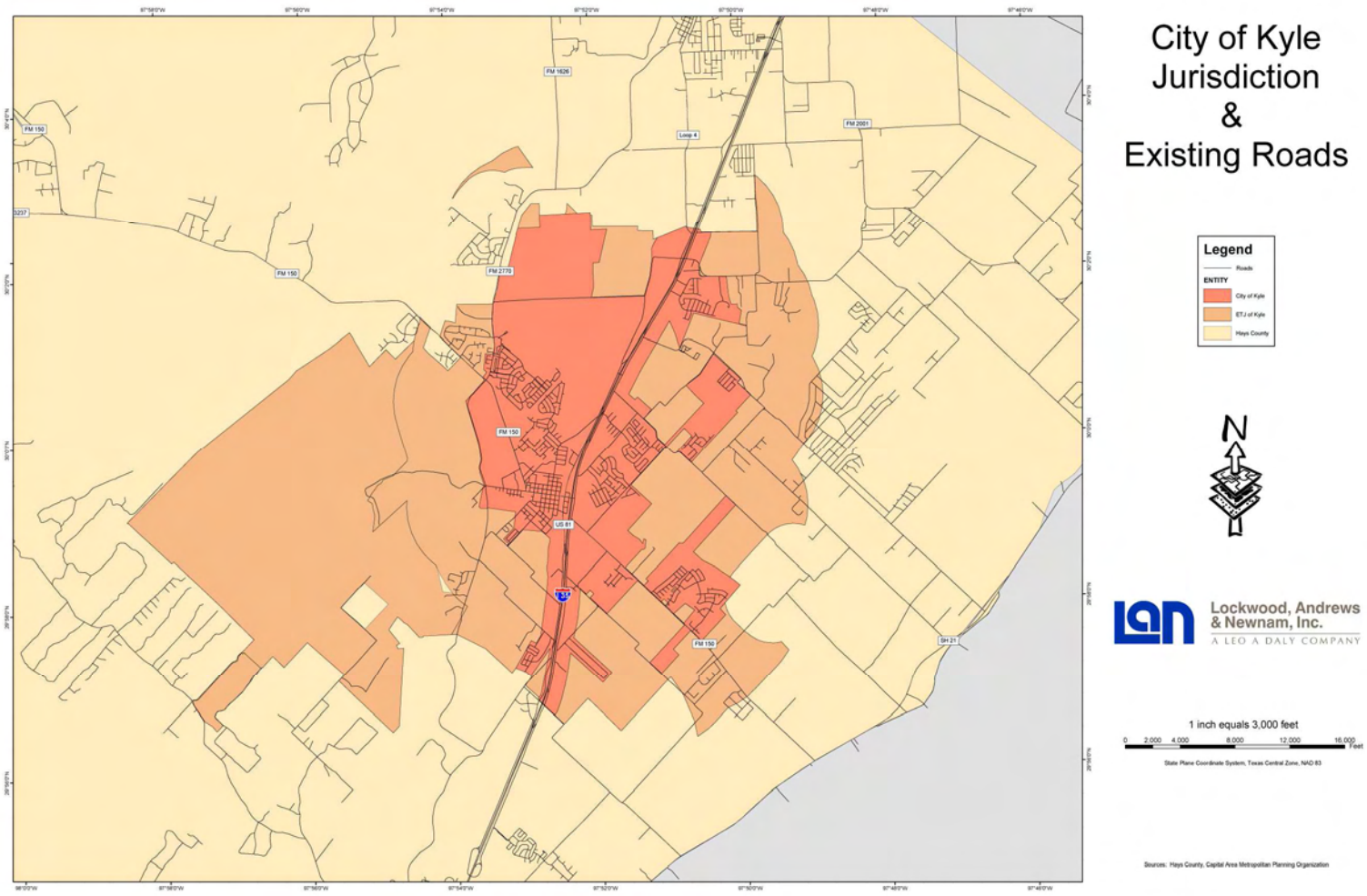


Figure 1.1: City of Kyle Jurisdiction and Existing Roads

1.4 Study Participants

The Mayor and City Council members appointed a Transportation Plan Advisory Committee (TPAC) to direct and provide input into development of the KTMP. The appointments represent a cross-section of citizen representatives within the Kyle community, most of who served the city for the first time and presented a "fresh" perspective on transportation issues. The TPAC also included representation from various city-stakeholder committees and/or organizations, including the HCISD. The TPAC is comprised of 10 members, 4 of which are citizens, 3 local agency representatives and 3 non-voting staff liaisons.

Citizen Representatives

- *Shane Arabie*
- *John Atkins*
- *Rhonda Cox*
- *Lila Knight*

Other Representatives

- *Kirk London, Superintendent of Schools*
  Hays Consolidated Independent School District
- *Tim Delano.....*
  Kyle Area Chamber of Commerce
- *Melinda Christ ..... City of Kyle*
  Planning Commission

Staff Liaisons (non-voting)

- *Thomas L. Mattis..... City Manager*
- *Jimmy Haverda ..... Director of Public Works*
- *Joel Wilkinson ..... City Engineer*

The City hired planners and engineers at Lockwood, Andrews & Newnam, Inc. (consultant) to prepare the KTMP.

The general public and all citizens were afforded opportunity to participate through the public involvement process (see Section 4.2).

2.0 Existing Transportation Conditions—"Kyle Today"

2.1 Demographics

According to the 2000 Census, the City of Kyle's demographics in 2000 were roughly comparable to Hays County as a whole. There were, however, a greater proportion of children—nearly a third of the total population. Although per-capita income was lower than the county average, household income was slightly higher and poverty rates were lower. This, along with larger average household size, indicates a large number of working families with children. Not surprisingly, the homeownership rate was also higher in Kyle.

Figure 2.1: New home construction

When compared with the county, Kyle has lower educational attainment but higher general income. Household size is large, with a high proportion of children and a low proportion of seniors. Travel time is longer, with fewer non-auto trips.

The table on this page illustrates these demographic comparisons between the City, the County, and the State.

Kyle's population however, has not grown at the rates suggested by the Census. According to Census data, the current population is about 5000. City records indicate that there are more than 5000 water meters in use. This suggests that the current population could be as many as 15000 Kyle citizens. There is no other data or observations to suggest that the percentages in table 2.1 have changed.

Table 2.1: Demographic Comparison -- 2000 Census

Statistic	City of Kyle	Hays County	State of Texas
Population	5,314	97,589	20,851,820
Children under 5	10.5%	6.3%	7.8%
Children 5-17	20.7%	18.2%	20.4%
Adults 18-64	63.7%	67.8%	61.8%
Seniors 65+	5.1%	7.7%	9.9%
Housing Units	1,560	35,643	8,157,575
Owner-Occupied	78.0%	60.8%	57.8%
Renter-Occupied	17.6%	33.0%	32.8%
Vacant	4.4%	6.3%	9.4%
Average Household Size	3.22	2.69	2.74
Finished High School	75.1%	84.7%	75.7%
Finished College	16.0%	31.3%	23.2%
Unemployment	1.6%	4.4%	3.8%
Median HH Income	$47,534	$45,006	$39,927
Per Capita Income	$15,252	$19,931	$19,617
Families in Poverty	4.8%	6.4%	12.0%
Median Home Value	$96,300	$129,400	$82,500
Travel Time to Work (min)	32.0	28.0	25.4
Drove Alone	79.7%	76.5%	77.7%
Carpooled	16.0%	14.2%	14.5%
Public Transit	0.0%	0.6%	1.9%
Walked	0.4%	3.8%	1.9%
Other Means (includes Bike)	2.2%	1.2%	1.3%
Worked at Home	1.7%	3.6%	2.8%

The map on the following page shows the population density as of the 2000 Census. The highest density currently is seen in the central city and around the subdivisions just to the north and northeast.

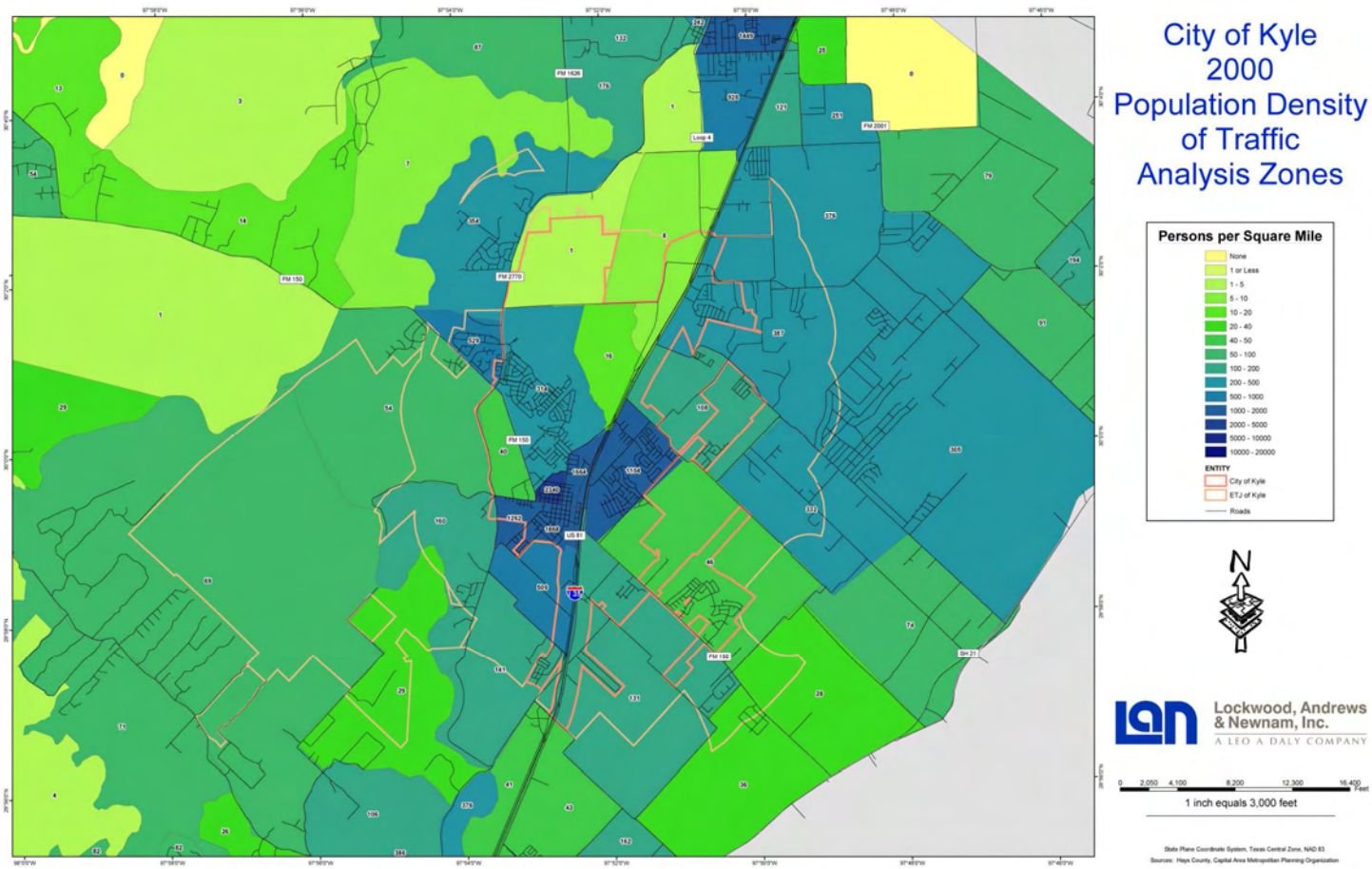


Figure 2.2: City of Kyle Year 2000 Population Density

2.2 Land Use

The City of Kyle and its ETJ have begun experiencing the leading edge of suburban development as it proceeds southward from Austin. Kyle's historic downtown has several blocks of small commercial establishments, the City Hall, and surrounding historic homes. The region could be a potential historic district.

There are numerous single-family subdivisions on the roads surrounding downtown, interspersed with agricultural land. The frontage of Interstate 35, which traverses the entire length of the City and bisects it lengthwise, is mostly undeveloped, although a number of large commercial properties are in various stages of planning. Wal-Mart, Home Depot, H-E-B, and other large-scale suburban retail uses, are expected to open in the near future. There is currently little to no multi-family residential development, and few large employers. Due to the recent growth of the area, most schools are new and are located on large, isolated parcels.

The map on the following page illustrates the current pattern of development; existing subdivisions, both built and unbuilt, are shown in dark blue.

2.3 Road Network: ROW, condition

Most city streets in the downtown area have 50-foot rights-of-way (ROW). Existing county roads are mainly 40 to 50-foot ROWs; while it is possible to fit 2 travel lanes into this ROW, it is preferable for aesthetics, mobility and safety to have a ROW of at least 100 feet, allowing the possibility of future expansion to 4 or possibly 6 lanes. This will require a program of land acquisition through either purchase or enforced dedication. TxDOT roads in general have adequate ROW, with the exception of FM 150 through downtown.

The maintenance status of area roads is uneven. The City of Kyle has recently begun a program to repave city streets with curb and gutters, and city-maintained streets are generally in good condition. Most subdivisions have excellent streets, as the majority of them are relatively new. The state- and county-maintained roads, however, are not in as good condition. In fact, most of the roads cited by the police and school district as being "poor condition" are owned and maintained by Hays County.

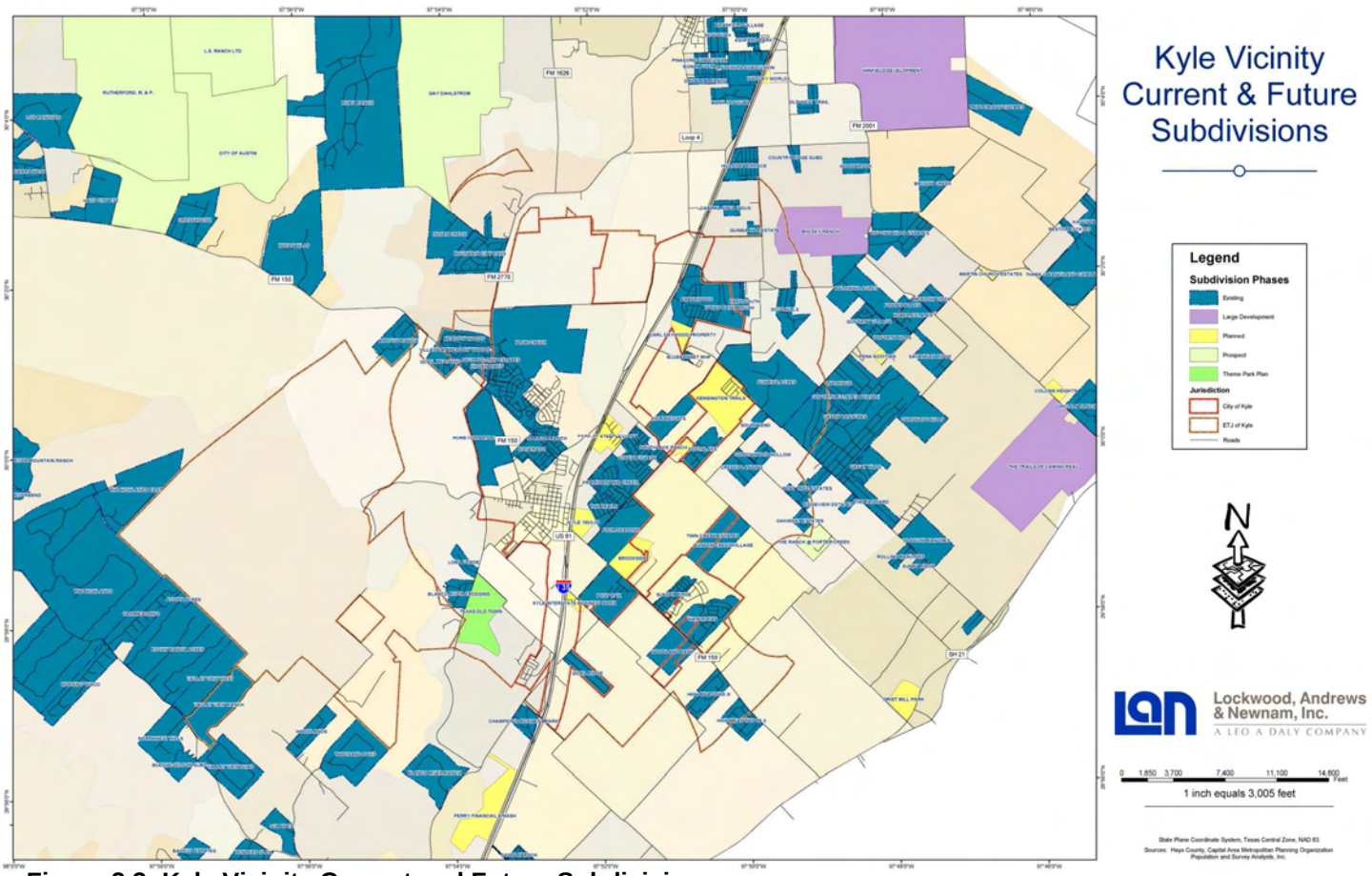


Figure 2.3: Kyle Vicinity Current and Future Subdivisions

2.4 Constraints: infrastructure, environmental, etc.

2.4.1 Natural and Political

The Blanco River creates a natural barrier to the southwest; although there is a large land parcel across the river within Kyle's ETJ, development of it will be difficult due to the river and existing subdivisions to its west. In fact, most of the land west of Kyle is quite hilly, being the edge of the Texas Hill Country, and this creates restrictions to large-scale development because of both uneven topography and the potential environmental impact on the underlying Edwards Aquifer. To the northwest is the City of Mountain City, but more significantly, there are several large environmental reserves belonging to the City of Austin. To the north of Kyle lies the City of Buda. A large quarry operation sits between the two cities. To the east and southeast is gently-rolling agricultural land. Beyond Kyle's ETJ in this direction is SH 21 and a string of small cities like Creedmoor, Uhland and Niederwald. In general, Kyle's ETJ limits are fairly constrained for a small city, although growth opportunities for it exist to the east-northeast.

2.4.2 Infrastructure

The presence of the Edwards Aquifer and its environmental regulation places constraints on infrastructure expansion into the Edwards Aquifer transition zone and recharge zone. The constraints consist of extra costs to meet permit conditions when development occurs in these areas.

Kyle's wastewater treatment facility is located southeast of town on Plum Creek. With this current configuration, effluent from future development in western areas of Kyle will need to cross IH 35 to receive treatment.

3.0 Growth Patterns—"Kyle's Direction"

3.1 Population and Employment Projections

As was stated in the introduction, the City of Kyle, being part of Hays County, has recently been included in the Capital Area Metropolitan Planning Organization (CAMPO). Part of the federally-mandated role of CAMPO, as coordinator of transportation projects in the region, is to provide projections of population and employment change, to aid its constituent governments in planning for future growth. The current projections extend out to the year 2030.

Population growth is projected throughout the Kyle area, wherever there is open land available for development. The only area where growth is not projected is in the central core of the city, where neighborhoods are largely built out. The fastest growth is projected to take place in the area around Kohlers Crossing and the FM 1626 extension.

The immediate employment trend is currently anticipated to be mainly retail and office services for the surrounding residential areas. This greatest growth in employment is expected along IH 35 just to the north and south of the central developed area, generally near the Bunton overpass and south of FM 150. As discussed in Section 1.2, Economic growth is one of the major goals of the KTMP and the City of Kyle. Significant transportation improvement always follows with economic development and job growth. Implementation of the KTMP will position Kyle as a true market center the supports all kinds of jobs.

The maps on the following page illustrate where growth is expected in population and employment over the next 25 years. Darker colors indicate a greater percentage of growth.

3.2 TxDOT Current Plans

3.2.1 FM 1626

FM1626, which currently ends at FM2770 between Kyle and Buda, will be extended southward across Kohler's Crossing Road, the UPRR and terminating at the existing Bunton Overpass over IH 35. This project was awarded for construction in December 2004. The road will consist of 4 lanes divided by a depressed median. FM 1626 will cross the UPRR with a bridge, thus providing a much-needed gateway across the UPRR that will not be interrupted by railroad operations.

3.2.2 IH 35 Bridges

TxDOT will replace three IH 35 bridges located at Dry Hole/Windy Hill, Bunton Overpass (FM 1626) and Center Street. The replacements will vastly improve the capacity to move traffic across IH 35. Additionally, the bridges will be architecturally enhanced with distinctive visual amenities so that motorists know they are in Kyle. The first planned replacement is widening the Bunton underpass. It is timed with the construction of FM 1626. Closely following will be the bridge at Dry Hole, then Center Street (FM 150).

Figure 2.4: Evening traffic exiting to Bunton

3.2.3 IH 35 Frontage Roads

TxDOT is currently designing the west frontage road connecting Dry Hole to the future location of FM 1626. This segment is scheduled to award a construction contract 3rd quarter, 2005. The new frontage road will be 3 lanes wide and have one-way traffic operations.

Another improvement linked to FM 1626 is the relocation of the southbound Bunton Overpass exit ramp. It is being designed to relocate the exit ramp approximately 1000 feet north of its present location. This improvement will correct traffic queues from backing down the exit ramp as illustrated above in figure 2.4.

Also in the works is the conversion of the IH 35 frontage road system in Kyle's ETJ to one-way operation. This will have a positive impact on the traffic patterns and intersection safety in Kyle's ETJ, as currently many east-west roads do not line up with freeway overpasses or with another road across the freeway. The most significant safety improvements will be at ramp gore intersections as the motorist will then contend with conventional two-way ramp gore junction merge intersections as opposed to the current three-way intersections. Coupled with the proposed bridge improvements, one-way operations will also afford opportunity for vast mobility improvements, especially when intersection traffic signals are installed.

3.2.4 FM 150

FM 150 is currently being widened from 2 lanes to 3 lanes from IH 35 to SH 21. The widening is being conducted in stages as funding becomes available from developers' contributions.

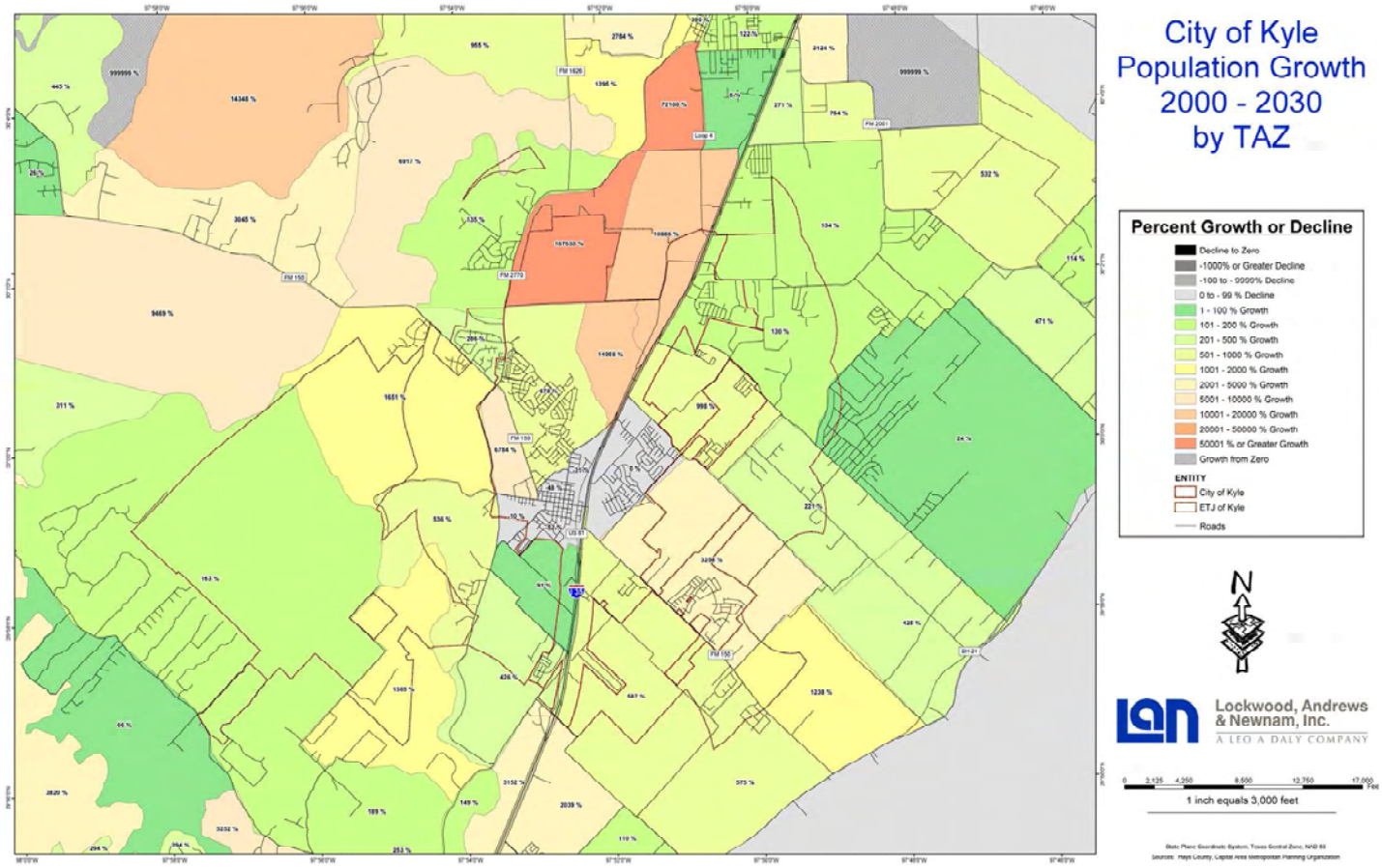


Figure 2.5: Year 2030 Population Growth

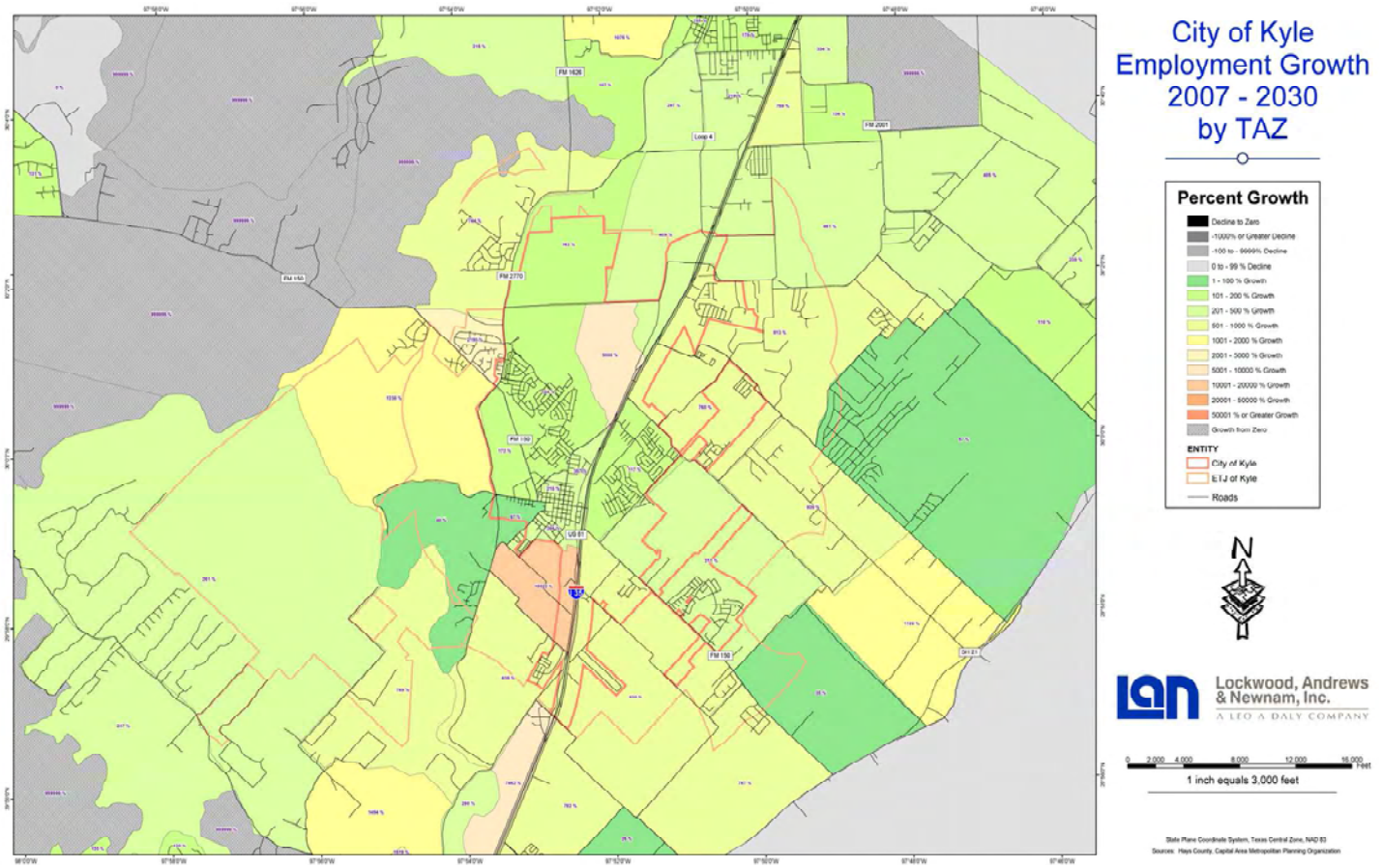


Figure 2.6: Year 2030 Employment Growth

4.0 Public Participation—"Kyle's Thoughts"

4.1 Public Agency Input

Preliminary thoroughfare maps were provided to the Kyle Police Department, Fire Department as well as the HCISD. These agencies returned a list of comments on specific areas and issues. Although some relate to issues out of the City's jurisdiction, those have been forwarded to TxDOT or the appropriate agency for consideration. The remaining comments on road safety and locations of desired improvements have been incorporated into this report and are listed in Section 6.2.

4.2 Community Meetings and Public Involvement

City leadership recognized the significance of the study and determined that the TPAC would provide leadership, direction and input into the development of the KTMP. The TPAC met at strategic dates that were timed at key decision making points during the study's schedule. Meetings were held June 24, October 7, October 21, November 4 and November 18 at city hall. TPAC membership directed the development of the KTMP and provided grass-roots insight into the plan.

Three local agencies involved were the Kyle Fire Department, Police Department, and HCISD. Leaders of these agencies reviewed large scale maps of the areas and gave the consultant comments on their concerns and insight. Several of the plan's components are a result of their input.

One public meeting was held on November 15, 2004 at Hays CISD Performing Arts Center. The meeting began at 6:30 pm with a come and go open house. Open house displays consisted of demographic maps, KTMP component maps and the corresponding implementation plan. Members of the TPAC and consulting team were present at the open house to answer the public's questions.

Following the open house, the consultant presented the draft KTMP's components. The audience was later divided in workgroups where a planning charrette was held. The comments from the charrette were documented on flip chart boards. The audience reconvened and the notes taken during the charrette were shared to bring closure to the meeting.

The meeting was advertised in the Hays County Free Press and the Kyle Eagle newspapers. The formal public comment period began on November 15 and ended November 24 (day before Thanksgiving holiday). Informal review sessions were offered at Fonzies, a local coffee shop on Old 81. These were led by the City Manager, Tom Mattis and attended by the consultant, Eddy Etheredge.

Those citizens who could not attend the public meeting were afforded an opportunity to review the draft KTMP at the public library and at city offices beginning on November 16 and ending November 22. Comment forms were available to document their thoughts and concerns for the TPAC's consideration in the plan.

Figure 4.1: Design Charrette

4.3 Outcomes

Following the public meeting, some modifications were made to the plan, in response to community desires. These changes are reflected in the Needs Assessment lists presented later in this document.

1. Addition of B6, a new bridge over IH 35 located at FM 150 West (about ¼ mile south of Center Street). This alleviates the difficulties of the offset in FM 150.
2. Addition of I6, an intersection improvement at CR 134 and CR 158 (at the Kyle Interstate Business Park). This improvement will eliminate the awkward skewed angle at this intersection and improve safety in turning movements.
3. Realignment of NLR11 at its intersection with Burleson Street (R15), to better align with existing stream crossings and property boundaries.
4. Realignment of NLR8 to transition into NLR17 at the intersection of Dry Hole and Kohler's Crossing. This will provide a more continuous corridor paralleling IH 35 to the west.
5. Extension of R14 (Kohler's Crossing) the last ¼ mile from Dry Hole to the IH 35 frontage road proposed by TxDOT. This will improve circulation for the developing commercial area.
6. Realignment of NLR19 slightly to the south. This is mainly a graphic edit to reflect the corridor's true location adjacent to the Quail

Ridge subdivision; on some maps it appeared to cut through the southernmost line of houses, which was not intended.

The following list is the summary of public comments recorded at the meeting, organized by subject area.

MAINTENANCE/UPGRADES

- Address needs of Post Road between FM 150 and Weldon Johnson Way.
- Traffic safety improvements needed near High School.
- CR 158 needs attention.

SCHEDULING

- Kohler's Crossing/Dry Hole Road improvements should be more "immediate" than short-term.
- Concern over sequencing of bridge replacement along IH 35.
- Most important corridors:
  FM 1626 extension to east*
  FM 150 at IH 35*
  Outer Loop
  Lehman Lane
  Goforth Road
  Burleson Street and NLR 17
  (backage roads to west side of IH 35)
  Loop 4 connection to Buda
  **2 comments each; all others 1 each*

ALIGNMENT CHANGES

- Southwest corner of Outer Loop should move south of Opal Lane to avoid existing properties and use open land (which is also higher ground).
- North portions of Outer Loop run directly along Plum Creek.
- FM 150 East could connect to Center Street behind HEB property at NE corner of 150 & 35.
- Not that important to straighten roads—curves are a natural speed control. Also, cutting properties into pieces is not cost effective for owners or taxpayers.
- Dacy Lane straightening should adhere to existing right-of-way as much as possible.
- FM 1626 east extension should keep Bauerle property as intact as possible. (Don't cut it into too many pieces.)
- One-way pair of Center and Moore Streets (downtown) could increase capacity without additional right-of-way.
- These corridors are contentious and need a specific alignment studied:
- FM 1626 east extension
- NLR 11

GENERAL CONCERNS

- East-west flow is problematic and needs greater study.
- Neighborhoods impacted by construction should be involved as early as possible.
- Commuter Rail stop should go near FM 1626. (2 similar comments)

OTHER ISSUES

- Improvement needed to all low-water crossings. (2 similar comments)
- Voting District 2 needs wastewater services.
- Model the flow of estimated development based on studies. (This was a written comment and the team is not certain as to its application. We assume that the commenter is referring to using gravity modeling techniques to predict travel demand and system performance. This level of study is indeed warranted, but is outside the scope of this study)
- Consider circular flow for each level of the plan. (This was a written comment and the team is not certain as to its application. We assume that the commenter was referring to detailed circulation studies that correlate to the Implementation Plan's schedule)

Figure 4.2: Open House Displays

5.0 Future Projections—"Kyle Tomorrow"

Kyle's transportation future promises an economical network of streets, trails and commuter rail to support a high quality of life that its citizens desire. The KTMP has identified the network of streets that provide a balance between access and mobility. The network is comprised of major and minor collectors, arterials, and of course the freeway.

5.1 Level of Service and the Basis for the Thoroughfare Grid

Traffic congestion is generally analyzed in terms of peak-hour volumes because that is when the roadways are at maximum operation. The peak hour generally constitutes 8 to 12 percent of the total daily traffic, and it is common to use 10 percent of the average daily traffic volume to represent the peak hour flow. The effectiveness of the roadway in maintaining an acceptable standard of traffic flow, given its design capacity, is evaluated in terms of its "level-of-service" (LOS). Level-of-service ratings use an alphabetic scale, with "A" as most free flowing and "F" as having severe congestion. The LOS is calculated by taking the peak hour flow (10% of the daily total) and dividing by the number of lanes of the roadway, then applying the result to the following scale to assign the level-of-service.

LOS	Vehicles per hour per lane
A	0-199
B	200-349
C	350-499
D	500-649
E	650-799
F	800 or more

For example, a four-lane road with 18,000 vehicles per day:
18,000 x 10% = 1,800 peak hour; 1,800 / 4 lanes = 450 per hour per lane = LOS "C"

Roadways with level-of-service "A" through "C" are most desirable. LOS "A" is negligible amounts of traffic, such as might be found late at night. "B" and "C" are typical off-peak volumes (mid-morning or mid-afternoon). Peak, or rush hour, often finds roadways with LOS "D," moderate congestion which is considered acceptable. Most roadways are designed to experience congestion no worse than "D." LOS "E," heavy congestion, and "F," severe congestion, are generally considered unacceptable, and are usually addressed by increasing the number of travel lanes, retiming signals, or other traffic control measures.

As previously stated, level-of-service "D" is the maximum allowable congestion that agencies generally accept for a traffic facility. This must be converted into an equivalent thoroughfare network, given the typical density of development and vehicle behavior of the area being studied. Suburban densities for new construction in the United States in general and in Central Texas in particular typically have single-family homes on lots of 6,000 to 10,000 square feet, or approximately 4 to 7 households per acre. The typical US household generates approximately 10 trips per day, inclusive of commuting to work and/or school, shopping, and entertainment. This results in a "trip density" of 40 to 70 trips generated per day, per acre of residential development.

A square plot of land one mile on a side contains 640 acres; at typical suburban densities, this square mile will thus generate 25,600 to 44,800 trips per day. The peak hour will account for 10% of these trips, or 2,560 to 4,480. At level-of-service "D," no more than 650 vehicles per hour per lane, it will require 3.94 to 6.89 traffic lanes per square mile of development. This is the mathematical basis for the typical suburban United States development pattern, which is a one-mile grid of arterial roads of 4 to 6 lanes each. The grid intensity is dependent on the pattern of abutting development, as well as other factors. Proximity to freeways or high-demand areas like business districts would require more lanes or tighter spacing; conversely, parkland, steep slopes, or low-density development would allow fewer lanes or greater spacing. The one-mile grid is commonly the standard; although one could create any mathematically-equivalent spacing, the one-mile squares match the survey grid set up in the Northwest Ordinance of 1783, which is used in the majority of states.

1 mile = 5,280 feet
1 square mile = 5,280 * 5,280 = 27,878,400 square feet
1 acre = 43,560 square feet
1 square mile = 27,878,400 / 43,560 = 640 acres

Below is a further explanation of the characteristics of each level-of-service.
A: Primarily free-flow operations at average travel speeds—90 percent or more of the free-flow speed. Vehicles are completely unimpeded in their ability to maneuver within the traffic. Stopped delay at intersections is minimal.
B: Reasonably unimpeded operation at average travel speeds—usually 70 percent or more of the free-flow speed. The ability to maneuver in the traffic stream is only slightly restricted, and stopped delays are not bothersome.
C: Stable operations, although ability to maneuver and change lanes mid-block is more restricted than "B," and queues and/or poor signal coordination may contribute to lower travel speeds—about 50 percent of free-flow speed.
D: Small increases in flow may cause substantial increases in approach delay and decreases in arterial

speed. Average travel speeds are about 40 percent of free-flow speed.
E: Significant approach delays and average travel speeds of 30 percent or less of the free-flow speed.
F: Extremely low speeds. Intersection congestion is likely at critical signalized intersections, with high approach delays resulting.

5.2 Functional Classification

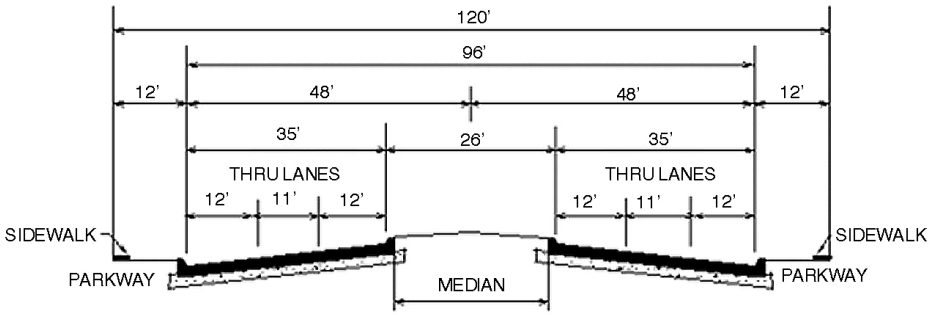
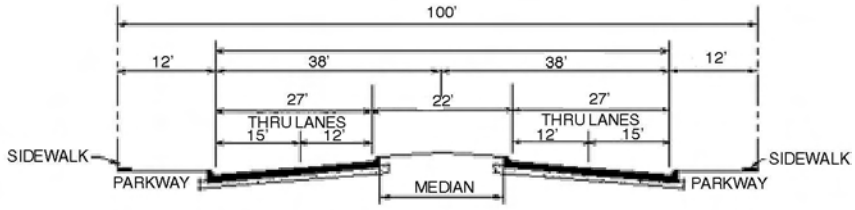
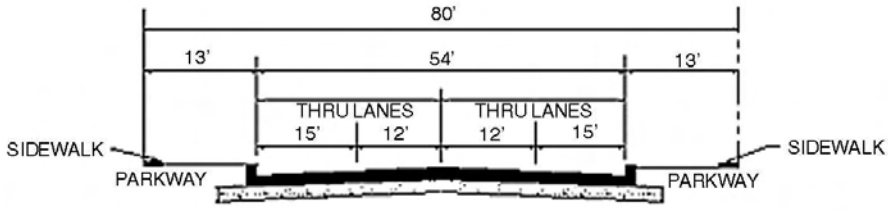
The ultimate design of a roadway is affected by the amount of traffic it is projected to serve, as well as its role in the regional system. Local streets will of course be designed differently than arterial roadways. This concept is known as Functional Classification. Roads can be classified by how they serve the area around them, on a continuum of property access versus traffic mobility.

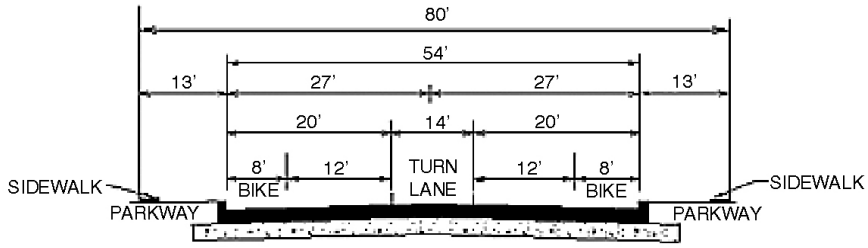
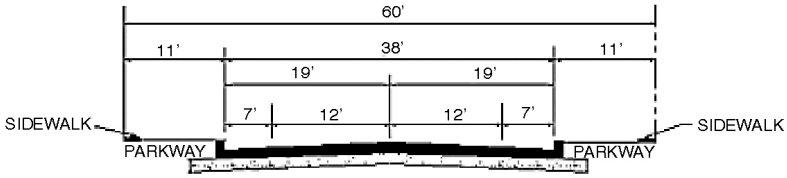
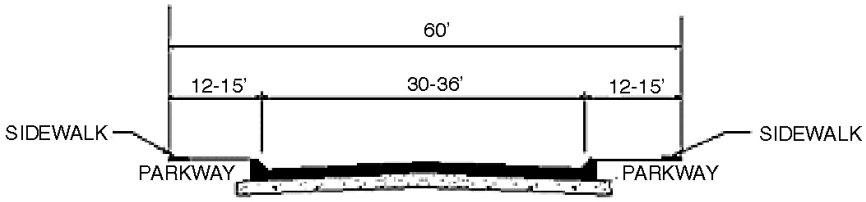
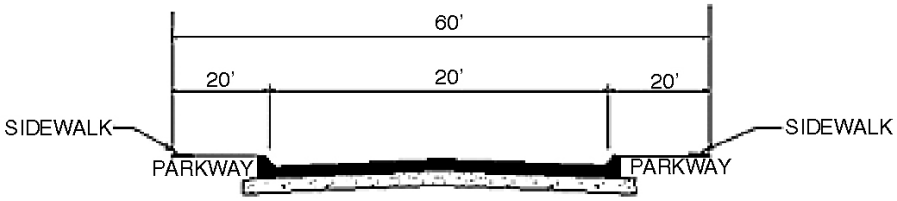
For example, a local street exists primarily to provide access to properties immediately adjacent to the street right-of-way, such as single-family homes. These streets are typically narrower, with low speed limits, on-street parking, and numerous driveways. Collector (sometimes known as Connector) streets serve these functions as well, but also link neighborhoods to one another, connect local streets to arterials, and serve short-distance trips such as home to retail. Collector streets may or may not be multi-lane or divided, but typically have lower speed limits and frequent driveways.

Arterial roadways' primary function is to move traffic throughout the community. They often draw commercial and retail activity precisely because they carry large volumes of traffic. Arterials will often have multiple lanes, sometimes medians, and typically have some sort of restrictions on driveway spacing or distance between intersections. This reduces the accessibility to adjacent property, but the trade-off is smoother traffic flow on the roadway. Finally, expressways and freeways serve only to move traffic long distances at high speeds. They do not allow entry and exit except at controlled locations and have no at-grade intersections.

These are merely descriptions of the concept of classification; different communities may create any number of additional classifications. For example, minor and major arterials, or commercial collectors vs. residential collectors. Communities may also tie specific design elements to the functional classification, such as number of lanes, right-of-way width, or speed limit. Projected traffic volumes, connectivity and available ROW will influence the classification given to each roadway segment. This could influence initial and ultimate cross-sections as well as improvement priority and construction cost.

5.3 Typical Urban Sections

Major Thoroughfare Service Flow 23,500-33,000 ADT	Construction Cost = **$2.7 million/mi.**
 CROSS SECTION - MAJOR THOROUGHFARE SF 23,500-33,000 ADT	ROW Need = **633,000 SF/mi**
Major Thoroughfare Service Flow 16,100-23,000 ADT	Construction Cost = **$2.2 million/mi.**
 CROSS SECTION - MAJOR THOROUGHFARE SF 16,100-23,000 ADT	ROW Need = **528,000 SF/mi**
Arterial Street Service Flow 12,600-18,000 ADT	Construction Cost = **$1.8 million/mi.**
 CROSS SECTION - ARTERIAL STREET SF 12,600-18,000 ADT	ROW Need = **422,400 SF/mi**

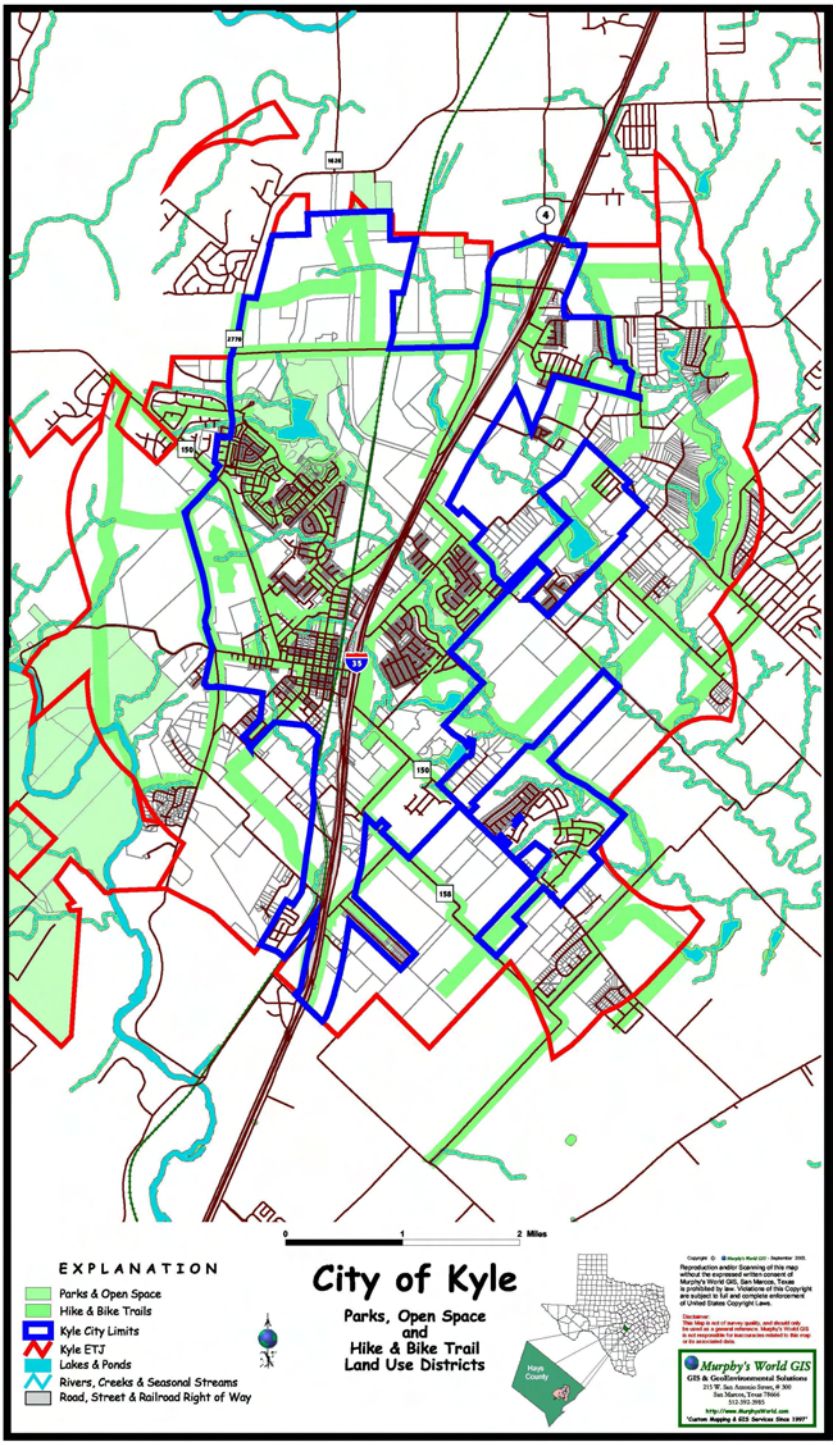
Arterial Street Service Flow 0-11,000 ADT	Construction Cost = **$1.8 million/mi.**
 CROSS SECTION - ARTERIAL STREET SF 0-11,000 ADT	ROW Need = **528,000 SF/mi**
Collector Street Service Flow 0-11,000 ADT	Construction Cost = **$1.5 million/mi.**
 CROSS SECTION - COLLECTOR STREET SF 0-11,000 ADT	ROW Need = **316,800 SF/mi**
Local Street	Construction Cost = **$1.2 million/mi.**
 CROSS SECTION - LOCAL STREET	ROW Need = **316,800 SF/mi**
Residential Lane	Construction Cost = **$900 thousand/mi.**
 CROSS SECTION - RESIDENTIAL LANE	ROW Need = **316,800 SF/mi**

5.4 Bicycle & Pedestrian

The Mobility 2025 Plan published by Capitol Area Metropolitan Planning Organization (CAMPO) indicates bicycle routes on FM 1626 and FM 2770 from their intersection, extending northward into Travis County. A bike route is also indicated on Loop 4 beginning near IH 35 and extending northward. The south limit of the Mobility 2025 Bicycle Route System Study is at the intersection of IH 35 at Kelly Smith Lane and the intersection of FM 1626 at FM 2770.

CAMPO is currently developing the Mobility 2030 Plan. The draft Mobility 2030 Plan identifies all of TxDOT's system roadways to be a part of the 2030 on-road bicycle system. Although these bicycle routes may be easily implemented and will form a long-distance system to Travis County, routes on major roads alone will not serve Kyle's mobility needs. Additionally, it is important to realize that not all bicycle users will be proficient enough to be comfortable riding on wide, high-speed roadways, and a more complete system connecting into neighborhoods is desirable.

Recognizing this need for a more complete system, the City of Kyle Parks and Recreation Department (PARD) has a locally developed plan of interconnected trails and pathways, often using greenways along creeks, and including a continuous north-south bicycle facility along Old Stagecoach Road. The PARD recommendations have been incorporated into the KTMP. The map on this page illustrates the plan developed by the City PARD.



Pedestrian safety and accessibility are important to a mobility system. Every trip, whether primarily by private automobile, bus, bike or train, includes a walking component. However, the full potential for walking trips will only be met if good sidewalks are in place, they are direct connections to places people need to go, and people feel safe using them.

Sidewalks should be installed as part of any development, especially on routes near schools, parks, and where commercial properties are near subdivision entrances. Street lighting is also a necessity for safe and useful sidewalks, and should be installed wherever pedestrians are likely. Finally, it is important to emphasize that, like roadways, it is better to provide pedestrian and bicycle facilities in anticipation of their demand and use, rather

than responding to a safety concern developed when pedestrians or bicyclists make use of routes that were not designed with them in mind. The City PARD's plan is a great step towards this.

5.5 Rail Transit

Austin-San Antonio Commuter Rail Study, completed by Capitol Metro, identifies the proposed commuter rail corridor linking Austin to San Antonio as the existing UPRR line that runs north-south through Kyle. The TPAC considered the location of possible rail stop alternatives in downtown Kyle and at the intersection of future FM 1626 at UPRR overpass. After consideration by the public and the TPAC, the general consensus is that the FM 1626 overpass is the preferred location for a rail stop.

6.0 Implementation Strategies—"Kyle's Action Plan"

Assumptions:

1. Development type will be homogeneous, in this case single-family residential with commercial at major intersections and along the freeway. Population trends are expected to follow CAMPO projections.
2. Persons-per-household will remain similar to current figures.
3. Trip generation rates per household are similar to other suburban areas in Texas.
4. Level-of-service (LOS) standards for congestion on major arterials meet national averages.
5. No multiple activity centers—as a bedroom community for Austin, the majority of traffic in Kyle is assumed to travel east or west towards IH 35 and then north to Austin in the AM peak. During the PM peak, traffic returns south on IH 35 and then east or west to residential areas. (Some amount of traffic may travel north on FM 1626 instead of IH 35.)

6.1 Transportation Improvements Plan (TIP)

The TIP consists of a Thoroughfare Map and corresponding Program List. The map identifies the various improvements and indicates its location, project category and relative size. The map is based upon aerial photography so it contains current environmental concerns, land use patterns and existing road network. The program list was developed interactively using GIS technology and is linked to a database. The database contains all the TIP information and prioritized lists may be sorted from the stored data.

The TPAC began development of the KTMP with the preparation of a "Preliminary Needs Assessment List". This list included all identified transportation concerns brought to the TPAC. The identified concerns from agency involvement and TPAC concerns were addressed with proposed projects in the list. The list identifies each project as one of four categories: existing road improvement (R), new location road (NLR), traffic signal installation (S) or intersection improvement (I). There is a unique number suffix added to the category label as a means to provide a unique identifier to each transportation link.

The TPAC reviewed the list and recognized that portions of the list require immediate action to remedy current congestion. These projects have been labeled "I" for immediate action. Likewise, from review of land development patterns, the TPAC recognized that portions of the plan will need to be implemented in the short term. These projects have been labeled "S" for short term implementation over the next 3 to 5 years. The long term thoroughfare portions of the plan are a cursory look at solutions for future mobility needs. Long term projects have been labeled "L".

The Preliminary Needs Assessment List also identifies the owner of the project, an order of magnitude construction cost, project length, and prioritization. The list and the corresponding Preliminary Thoroughfare Plan Map can be found at the end of this section. Three prints of the map highlight immediate needs and projects planned for the short- and long-term. Three additional subsets of the project list follow the maps; these break out each time frame (immediate, short-term and long-term) with the list of projects in that time frame.

6.1.1 Thoroughfare Loop

TxDOT and the City of Kyle identified as a mobility issue the location of FM 150 through the central city. Kyle has several blocks of historical structures in its central core, which, while providing a potential destination for specialty retail in a pedestrian-friendly neighborhood, restrict the expansion of FM 150, a major arterial connecting northwest to southeast. Furthermore, FM 150 jogs southward for a short distance along IH 35, which creates a geometric problem with the future one-way frontage roads.

It was seen as potentially desirable to create a group of arterial roadways which would allow through traffic on FM 150 to bypass the center of town. This concept was further expanded to include planned roadways on all sides of Kyle's jurisdiction, forming a loop. The loop concept allows for efficient movement among the large-scale developments happening in the outer areas of Kyle, as well as removing through traffic from the central historic core. Roadway segments in the tables of improvements by projected time-frame have been marked as such when they make up part of the proposed loop.

6.2 Corridor-Specific Descriptions

- R1; IH 35-Future expansion of 35 mainlanes. Preliminary engineering studies are currently underway by TxDOT engineers. This effort would be best coordinated to include future crossings of Opal Lane, the preferred south loop crossing, and Yarrington. Look for the expanded mainlane capacity to be tolled.
- R2; IH 35-Conversion of Interstate frontage roads to one-way operation. TxDOT is approaching the conversion in stages. Look for sections in Buda to be converted first as Cabela's opens. The bridges at Bunton, Dry Hole and Center need replacement before the conversion is viable. Ramp intersection improvements at Beebe Rd. (I2) and FM 150 (I4), will most likely be a part of TxDOT's efforts to convert to one-way frontage operations. Traffic signals should be installed on major frontage road intersections when bridges are replaced (reference signal projects S1, S2, S5 and S10)
- R3; Dry Hole-This existing corridor from Kohlers Crossing to IH 35 frontage road near Bunton Overpass is in the design stages and will be configured as a collector road.
- R4; FM 150 from FM 3237 to FM 2770—CAMPO identifies this segment to be reconstructed to 4 lanes. Because it provides a west-east corridor, the KTMP identifies it as a thoroughfare.
- R5; FM 150 from FM 2770 to Center-CAMPO also identifies this segment for reconstruction although it has already been so.
- R6; FM 150 along Center Street-It is not plausible for this segment following Center Street to be widened due to widening's impact on a potential historic district. However, widening isn't viable should alternative routes be improved in the short term. Look for construction of the southwest portion of the loop to relieve much of Old Town traffic. Also, look for R31 and NLR7 to further enhance access to and from Old Town to the south loop. Short term improvements in this corridor should be installation of traffic signals located at IH 35, Old 81, Burleson, FM 150 and at Old Stagecoach. The signals should be linked with technology for the most effective operations management.
- R7; Hill Road (FM150 East)—Widening to 2 lanes with CLTL is currently occurring in stages as developers fund the construction. It will ultimately serve as a major east-west corridor linking families to IH 35. Therefore, the corridor has been classified as a thoroughfare.
- R8; FM 2770 from FM 1626 to FM 150-This project is scheduled for construction by TxDOT and will widen the highway to 4 lanes. Traffic signal, S12 will be installed with this project.
- R9; Widening of Goforth—This road is constrained on both sides and may not accommodate 4 lanes but should have ROW for at least 2 lanes + CTL. (Collector classification). The elementary school experiences twice-daily traffic jams when parents drop off and pick up children. Project I5 consists of turn lanes and intersection improvements at the school.
- R10; Widening of Lehman—This road is similar to Goforth (R9). Because it is nearly a mile from and parallel to IH 35 it has been classified as an arterial. There is little opportunity for extension to the south, but there is value to a northern extension because it could provide another link to access Lehman High School (NLR3). This corridor serves mainly as a major collector for abutting subdivisions.
- R11; Windy Hill (Andrews Xing)—This is the northeast preferred location for a loop. A desirable loop alignment should be smoother, without the current section line kinks in the old county road. Should NLR26 be approved, look for Windy Hill to be classified as a collector or local road. Otherwise, Windy Hill would become the northeast loop alignment and it would be classified as a thoroughfare. Subdivisions exist along the south side of the ROW, but straightening should be possible to the north. Improvements in this area are a high priority due to northern location and connection to Kohlers to the west.
- R12; Dry Hole-This existing corridor linking Kohlers Crossing to IH 35 at CR 210 (Windy Hill) is a major link connecting west portions of Kyle and the Plum Creek subdivisions to IH 35. It is therefore classified as a Thoroughfare. Should the north portion of the loop traverse the quarry (NLR23 and NLR24), then the functional classification may be downgraded to an arterial.
- R13 and R14; Kohlers Crossing—with the extension of FM1626, the commercial development associated with Cabela's, and the build-out of Plum Creek, this corridor should be widened to a 4 lane arterial. If the northwest loop segments, NLR22 and NLR23, aren't viable, then Kohlers Crossing should be constructed as a thoroughfare.
- R15; Burleson—this corridor serves as a minor collector for Old Town Kyle. It should be maintained as 2 lanes and, if ROW permits,

have a CTL as there are a large number of cross streets. Burleson has one of the current UPRR at-grade crossings. Constructing a bridge over the UPRR should be taken into consideration as this will eliminate motorist delays when trains are parked on the side track. A minor feasibility study would determine this bridges' cost effectiveness.

- R16; Old US81—This currently functions as the west frontage road for IH35. A new frontage road constructed a few hundred feet to the east would relieve most of the traffic demands at the Center Street intersection. Short term, signal improvements at Center should include additional approach lanes to optimize signal operations. Old 81 should be maintained as 2 lanes and could be widened to 3 with a CLTL as there are a large number of cross streets.
- R17; Goforth from Bunton Ck Road to Bunton Lane-This segment would be a major link in the eastward expansion of FM 1626. It serves as access to Lehman High School and surrounding neighborhoods to IH 35, plus is a vital link connecting Kyle to Austin Bergstrom Airport and San Marcos Airport. It is designated as a thoroughfare. This segment contains the installation of 2 traffic signals at Goforth and Lehman (S3 and S4).
- R18; Bunton from Goforth to Dairy Road- This is another segment of the FM 1626 extension and shares the same issues as R17 above.
- R19; Bebee from IH 35 to High – The location of the Bebee corridor is approximately one mile between FM 1626 and Windy Hill Road. Therefore, it would collect and serve enough traffic to be classified as a thoroughfare. A bridge across IH 35 would enhance access to 35 and retail markets on the west side.
- R20; High Street – This segment would serve as the east extension of Bebee and is classified as a thoroughfare.
- R21; Dacy Lane from Bunton (R17 to east loop, NLR20) – This corridor's importance is heightened due to Hays CISD's new Junior High School being located at the corner of Bebee. Dacy would provide much needed north-south access from neighborhoods to the school. The corridor has been classified as a thoroughfare because it is spaced greater than one mile from IH 35.
- R22; Old Stagecoach—As a continuous north-south corridor west of IH35, this road has huge strategic potential, especially as it lines up with FM2770. This corridor is identified as the west portion of the loop. Therefore it is classified as a thoroughfare. Along with Opal Lane (R24) below, it could serve as a relief route for northwest-to-southeast traffic looking to bypass Old Town Kyle.
- R23; Old Stagecoach from Center to FM 110 (future San Marcos outer loop) – This corridor will provide much needed future north-south access as an alternative route to IH 35. It will link Kyle to San Marcos. It also connects Kyle's loop to the San Marcos outer loop and provides a means for north San Marcos residents to access Kyle's retail markets.
- R24; Opal Lane from Old Stagecoach to IH 35 – This existing corridor will be crossed by the southwest portion of Kyle's loop. The segment cutting the corner of the loop is designated an arterial, while the existing railroad crossing is retained as a collector.
- R25; Opal Lane extension from IH 35 to CR 158 – This corridor is the southeast portion of Kyle's loop. It parallels Hill Street for a couple of miles before turning northward. As part of the loop, it is classified as a thoroughfare.
- R26; Roland Lane from Old Stagecoach to IH 35 – This corridor is classified as a thoroughfare and is an alternative location for Kyle's southwest portion of the loop.
- R27; Cypress Road from Old Stagecoach to Blanco River – This segment's importance will grow as Kyle develops westward and commuters seek corridors to IH 35. Cypress is classified as a thoroughfare.
- R28; Dacy Lane from Windy Hill to Kelly Smith – This portion of Dacy Lane is at the northeast edge of Kyle's ETJ, but none-the-less is located at an important north-south corridor that parallels IH 35. It is classified as a thoroughfare.
- R29; East Post Road from NLR19 to R25 (southeast Loop) – This corridor is identified as a collector because it is near to and parallel to IH 35.
- R30; Center Street from Old Stagecoach to FM 150 – This segment of Center serves a Junior High School and city park. Widening to a 4 lane thoroughfare may better serve these facilities.
- R31; Scott from Center to Opal – This existing local road could be connected to Center Street immediately opposite FM 150, thus improving circulation to and from the southwest loop at Opal Lane. It has been identified as a thoroughfare, although an arterial designation may suffice.
- R32; Dry Hole Road from IH 35 to Kohlers Crossing – This existing road is experiencing a lot of retail development of big-box stores. It crosses IH 35 with an underpass structure that serves as a gateway to Kyle. Due to its strategic link as part of the north loop and

service to retail markets, this road has been designated a thoroughfare.

6.2.1 New Corridors Not Previously Identified:

- NLR1; FM1626 extension—This is in progress by TxDOT and will be awarded for construction in December 2004.
- NLR2; FM 1626 to Bunton connection-This new location Thoroughfare would link the proposed FM 1626 to Goforth and Bunton roads. It would be a gateway to Lehman High School and serve commuters in subdivisions east of IH 35. This corridor would immediately relieve congestion at the Center Street bridge over IH 35. Preservation of ROW for this transition should be a very high priority, as it seems the only option for extending the 1626 corridor to the southeast.
- NLR3; Lehman north extension to Cotton Gin (NLR4) – This new location corridor is dependant on implementation of connecting Cotton Gin to IH 35 at FM 1626. See NLR4 description below. This alternative has been dropped from the KTMP because of inconsistency with the plan's stated goals.
- NLR4; 1626-to-Cotton Gin transition—this identified arterial could serve as a much needed east to west link to IH 35. However, it is plagued with environmental and ROW displacement problems. Therefore, this alternative has been dropped from the KTMP because of inconsistency with the plan's stated goals.
- NLR5; Burleson from Center to Allen – This corridor could become an important southern gateway to Old Kyle from the southwest loop by way of NLR7. It is designated as an arterial.
- NLR6; Burleson from Yarrington to Opal – This new location corridor would provide north-south access to Old Kyle. It is classified as a thoroughfare.
- NLR7; Burleson from Opal Lane to Allen – Linked with NLR5, this would serve as a southern gateway to Old Kyle from the southwest loop. It is designated as an arterial.
- NLR8; Burleson from FM 1626 to Kohlers Crossing – This corridor would provide access to retail without having to use IH 35. It is classified as an arterial.
- NLR9; IH 35 frontage road – This proposed southbound frontage road would parallel Old 81. It would relieve much of the traffic experienced at the intersection of Center and Old 81. It is classified as a freeway.
- NLR10; Burleson from Spring Branch to FM 1626 – This new portion of Burleson is considered because it would link Old Kyle with the UPRR overpass. This link would be an alternative to a RR overpass bridge on existing Burleson. Benefits are improved emergency vehicle access during train passages. It has been classified as an arterial.
- NLR11; This is a new location collector road that would serve as parallel access to IH 35.
- NLR12; Yarrington from Old Stagecoach to IH 35 – This is an extension of existing Yarrington with a bridge over the UPRR. Its proximity to proposed San Marcos outer loop may make more sense to terminate it into the loop immediately west of the UPRR overpass. It is classified as an arterial.
- NLR13; New location arterial from Yarrington to FM 150 – This corridor would serve as parallel, north-south road that connects the future San Marcos outer loop to Kyle's southeast loop.
- NLR14; This new location thoroughfare is a portion of Kyle's east loop and connects FM 150 to Bunton Lane.
- NLR15; This new location thoroughfare is a portion of Kyle's east loop and connects Bunton Lane to High Road.
- NLR16; This alternative was a portion of the east loop. It was eliminated from KTMP because it was inconsistent with the plan's stated goals.
- NLR17; This new location arterial connects Loop 4 with Dry Hole. The City of Buda asked Kyle to consider this connection.
- NLR18; This new location thoroughfare is the in the southeast corner of the Kyle loop. It connects CR 158 with Hill (FM 150).
- NLR19; This new location arterial would be an extension of Yarrington to the east across IH 35. It would be a major corridor between the San Marcos outer loop and the southeast Kyle loop.
- NLR20; This new location thoroughfare is the northeast portion of Kyle Loop. It connects Bebee to Dacy Lane.
- NLR21; Opal Lane west extension - This corridor is identified as a possible extension of Opal west across the Blanco River.
- NLR22; This new location thoroughfare is the north portion of Kyle Loop. It traverses the mining facilities immediately west of Dry Hole. This alignment is most desirable as it proceeds due west from the Dry Hole/Windy Hill bridge at IH 35 and connects to FM 1626. However it faces severe physical and environmental challenges presented by traversing mining operations.

- NLR23; This new location thoroughfare is the northwest portion of Kyle Loop. It connects FM 1626 to FM 2770. This road segment will not be viable if NLR22 cannot be constructed.
- NLR24; This new location thoroughfare is a proposed westward extension of a thoroughfare grid beyond Old Stagecoach Road.
- NLR25; This new location thoroughfare connects the San Marcos outer loop to the southeast corner of the proposed Kyle Loop.
- NLR26; This new location thoroughfare is a northeast portion of the Kyle Loop and connects the Windy Hill bridge at IH 35 with Dacy Lane. This road is on a favorable alignment with the IH 35 bridge.
- NLR27; This corridor makes the southwest portion of Kyle's loop. It will serve as a major gateway across IH 35 and is classified as a thoroughfare. Residents in west Kyle will likely use this route as an alternative to Center Street.

6.2.2 Responses to Concerns of Hays CISD

- IH35 east feeder at CR130 (Bunton)—*School buses, 18-wheelers, and fire trucks use this intersection. Widen turning radius.* This is under TxDOT jurisdiction and should be addressed with work on converting feeder roads to one-way—Recommendation to be conveyed to HNTB.
- UP Railroad crossings throughout area—*Sight distance is a problem. Ask UP to clear brush 1,000' from crossings.* Excellent idea—Recommendation to be conveyed to UP.
- IH35 east feeder at CR122 (Beebe)—*Confusing alignment with 2-way feeder. Relocate entrance ramp* This is under TxDOT jurisdiction and should be addressed with work on converting feeder roads to one-way—Recommendation to be conveyed to HNTB.
- IH35 east feeder at CR131 (Windy Hill)—*Road doesn't cross freeway at 90°. Realign road and/or bridge.* This is under TxDOT jurisdiction and should be addressed with work on converting feeder roads to one-way—Recommendation to be conveyed to HNTB.
- CR204 at CR157 (north end of Lehman Road)—*Yield sign is inadequate; limited sight distance due to fence. Replace with stop sign and relocate fence.* Conduct TIA to verify stop sign is warranted. Acquire ROW and/or easement for visibility triangle and consider adopting regulations requiring same in future.
- Low Water Crossings throughout County—*Barricades should be erected at nearest detour location, not at flooded location itself.* Excellent idea—Recommendation to be conveyed to City and County emergency-management agencies. Also, as roads are re-built in the future, as many LWCs as possible should be upgraded to bridges. LAN can be contracted to provide appropriate engineering services.
- FM150 East between IH35 and CR203 (Drue)—*Road is hilly, narrow, without shoulders, and dangerous. Improve this section to 2 lanes with CTL and shoulders, like the section from CR203 east to SH21 has been.*
  This is a heavily-traveled road and should be improved. It is under TxDOT jurisdiction, though, and they have indicated no work is currently scheduled.
- Street design in subdivisions—*Cul-de-sacs, roundabouts, alleys, etc. cause maneuverability issues for school buses.* This is an issue for the City/County agency that handles geometric standards for platting, but in general, residential streets should *not* be so wide or so straight as to "easily accommodate 71-passenger buses." This contravenes the desired feel of a residential street, and too easily facilitates high-speed travel which is dangerous for children and pedestrians. Buses may simply not be able to always travel on their "preferred routing," or may have to occasionally reverse.

6.2.3 Responses to Concerns of Kyle PD

- FM150 East—*no shoulders, no turning lanes, high speed, dangerous.* This is a heavily-traveled road and should be improved. It is under TxDOT jurisdiction, though, and they have indicated no work is currently scheduled. See also HCISD #7.
- IH35 northbound offramp to FM150—*exit speeds too high, bad angles, no turning lanes, slow trucks* This is under TxDOT jurisdiction and should be addressed with work on converting feeder roads to one-way—Recommendation to be conveyed to HNTB.
- General traffic congestion at peak hours—*conduct study to determine relief.* Some amount of congestion is inevitable, especially at peak travel times, but recommend to City that LAN can be

contracted to perform traffic counts or studies at individual intersections or corridors.

- IH35 northbound offramp to Bebee—*same as #2 above*
  This is under TxDOT jurisdiction and should be addressed with work on converting feeder roads to one-way—Recommendation to be conveyed to HNTB.
- Old 81 at Center Street—*needs right-turn lanes, blinking light inadequate.*
  Intersection most likely does need upgrading with the increased traffic; see response to #3 above.
- Center Street throughout downtown—*parked cars reduce sight distance*
  Parking may be reconfigured (number of spaces, angle, etc.) to improve sight distance, or speed limits may be lowered to reduce sight-distance requirement. Curb extensions or sidewalk bump-outs at intersections would restrict parking proximity and also aid pedestrian safety.

General concerns were expressed about development corridors like FM150 West. Much of this should be addressed with the long-term goals of the Transportation Plan, but specific issues may be brought to the Transportation Commission.

6.3 Cost Estimates

The Kyle Transportation Master Plan contains a great number of projects throughout the City area, including some that may not be necessary for many years. These projects were grouped into priority levels, based on TPAC's evaluations of their urgency. The criteria included the historic rate of development of surrounding land, current levels of congestion, population and employment growth projected by CAMPO, and coordination with ongoing and planned projects by other entities such as TxDOT.

As described in Section 6.1 above, some items on the project list require "immediate" action to remedy current congestion. Likewise, portions of the plan will need to be implemented in the "short term," over the next 3 to 5 years. The "long term" thoroughfare portions of the plan are a cursory look at solutions for future mobility needs, beyond the 5-year planning threshold of a typical capital improvements plan.

The table at the bottom of this page illustrates the total cost estimates for all the projects selected in each phase of the KTMP. More detail on individual projects is provided in the tables following page 29.

- Engineering costs for Signalization projects are estimated to be 25% of construction costs, as these involve simulation, testing, etc. Engineering for all other project types is estimated at 15% of construction costs.
- Right-Of-Way prices are generally equal to the corridor length multiplied by the corridor width and unit cost of $3/square foot, LAN's estimate of average land price in Kyle, as of late 2004. This is subject to change based on real estate market forces.
  Width of corridors is based on functional classification (typical design as illustrated in Section 5.3): Thoroughfare-110', Arterial-80', Collector-60', Freeway widening-100' (typical per side). New location roads (NLRs) include a 200% cost multiplier to account for "damages to remainder," referring to possible loss of residual value of partially-taken properties. Widening of existing roads accounts for this by not including the value of the existing right-of-way.
- Construction Oversight is estimated at 10% of construction costs for non-TxDOT projects, and 18% for TxDOT projects.
- Contingency is estimated at 15% of construction costs.

Table 6.3.1 Kyle Transportation Master Plan Cost Estimates

Time Frame	Immediate Needs	Short-Term	Long-Term
TOTAL COSTS	**$ 38,702,549.56**	**$ 107,225,031.84**	**$ 332,240,509.38**
Construction Cost	$ 12,552,601.05	$ 45,442,422.81	$ 113,699,133.73
Engineering Cost	$ 1,990,390.16	$ 6,876,363.42	$ 17,054,870.06
ROW Cost	$ 17,195,200.05	$ 34,349,194.12	$ 146,688,780.98
Construction Oversight	$ 1,916,199.66	$ 6,571,177.77	$ 11,462,006.00
Contingency	$ 5,048,158.64	$ 13,985,873.72	$ 43,335,718.62

6.4 Recommended Policies/Ordinances

6.4.1 Development Ordinance

The most important means of preserving the integrity of the Transportation Plan is to ensure the preservation of right-of-way for identified roadway corridors. After the KTMP is accepted by the City, the subdivision ordinance should enforce dedication of needed right-of-way for approved thoroughfares as a condition of plat approval. This ensures future subdivisions will not block the alignment of desired roadways.

In larger cities, amendments to the thoroughfare plan are accepted only at specific times of the year, to avoid re-issuing official maps repeatedly. In a smaller jurisdiction such as Kyle, this restriction probably would not be necessary, but there still needs to be a mechanism defined by which amendments may be made, typically requiring city staff to recommend approval or denial to Planning Commission or City Council.

6.4.2 Access policy

As discussed in Section 5.2, different classifications of roadways serve differing needs, and as one moves up the hierarchy of classifications, larger roadways function less for property access and more for traffic movement. Whereas at the other end of the spectrum, local streets' primary function is to connect driveways with the street system.

Many areas across the state, especially in developing suburbs, have seen traffic conditions on even large arterials deteriorate substantially if too many driveways, access points, traffic signals, and other conflict points are allowed. Unconstrained access is also directly linked to an increase in traffic accidents.

The KTMP recommends that the City of Kyle consider implementation of an access management policy where different classifications of roadway permit differing levels of access. For example, a residential lane may allow two driveways per lot, and no restriction on intersection frequency, whereas a major arterial might not allow intersections closer than 500 feet, and require adjacent commercial areas to share driveways. These policies can vary considerably given local needs, but the framework should be put in place to allow them to be developed. Two simple policies that can be implemented immediately are a requirement for driveway permits for major thoroughfares, and a design standard for frequency of median openings.

6.4.3 Drainage Policy

The Kyle ETJ area consists of rolling hills and farmland to the east, transitioning to more rugged terrain typical of the Texas Hill Country to the west. The region is subject to occasional heavy rains that, given the sandy and rocky nature of the soils, can result in flash floods.

It is therefore imperative that future development be supervised by a comprehensive master drainage plan. In particular, ordinances and design policy should be developed or enhanced to manage Kyle's future flooding events throughout the development of the land within its ETJ. The plan might require that sufficient detention be provided to mitigate increased peak discharges from paved areas, and ensure roadways are constructed with sufficiently sized culverts or other perforations to manage flooding limits.

Western portions of Kyle's ETJ are also in regulated zones of the Edwards Aquifer. The zones are recharge and transition zones. Development activity in these areas requires specialized considerations appropriate to an applicable zone. Anyone who plans to build on the recharge, transition, or contributing zones of the Edwards Aquifer, must first have an application including construction plans approved by the Texas Commission on Environmental Quality (TCEQ). Staff in the Edwards Aquifer protection program of TCEQ review these plans. After a plan is approved, the site is monitored for compliance.

6.5 Funding Options—Bonds, TxDOT, developers, etc.

Aside from determining a plan's contents, the most contentious aspect is often how it will be funded. Although this plan does not make financing recommendations for fundraising, this section is intended as an overview of some of the mechanisms available to Kyle and the region.

6.5.1 CAMPO (Federal Funding)

CAMPO, as the designated Metropolitan Planning Organization (MPO) for the three-county Transportation Management Area (Williamson, Travis, and Hays), is tasked by the Federal government with coordinating the distribution of Federal transportation monies among the 3 counties, 34 cities, and 5 villages in the region. The federal government mandates the activities of MPOs in general, and requires that, to be eligible for federal money, any local transportation project must be on the adopted plan of the region's MPO. Federal money is appropriated each fiscal year and often earmarked for specific projects. In general terms, the selection of projects for Federal funding begins with CAMPO advertising a "call for projects."

At this time, the City of Kyle must nominate transportation projects to CAMPO for funding consideration. CAMPO will consider the project's regional significance, performance, among other factors. Nominated projects compete on their merits with other projects from across the MPO's boundary within a fiscally constrained budget.

The fiscal plan used by CAMPO is the Five-Year Transportation Improvements Plan (TIP). The TIP is a comprehensive listing of transportation projects approved for funding and implementation within a given period, generally three to six years. CAMPO's TIP covers a 5-year period (2004-2008). Projects selected for the TIP are deemed priorities for the region. They can be in any or all transportation areas including public transport, roads and highways, bicycle and pedestrian facilities, as well as rehabilitation and maintenance. The 2004-2008 TIP is the Central Texas region's current legally-adopted TIP, approved by CAMPO's Transportation Policy Board on April 12, 2004.

CAMPO develops the TIP in collaboration with local governments, Capital Metro, Capital Area Rural Transportation System (CARTS), and TxDOT.

CAMPO, in addition to the five-year TIP, also coordinates the 2025 Transportation Plan ("Plan"). The Plan is the first stage in the planning and development of transportation project proposals offered to the public and policy makers for discussion. It is the source of the majority of projects detailed and mapped in this report.

The Federal government requires the MPO to administer this plan, which is a compilation of all the projects planned by each entity in the region. It must be fiscally constrained, so the expenditures cannot exceed the likely revenues. Thus there may be projects still in the "wish list" stage that are not in the Plan and may not ever be.

In addition to determining investment priorities, the 2025 Plan must demonstrate compliance with specific air quality improvement goals. Final approval of the Plan is contingent on a demonstration of conformity to the state's air quality plan. The Plan is required to 'conform' to emission limits set by the Texas Commission on Environmental Quality and the US EPA. Transportation conformity is a process that analyzes the major connection between projected emissions from on-road vehicles and proposed activities in the transportation plan. The Plan must conform to US EPA's air quality standards by showing that vehicle emissions associated with improvements to the transportation system will not exceed those required to attain the standard.

The 2025 Plan contains approved projects, projected needs, and demonstrates mobility and cost benefits, while accounting for the region's likely transportation revenues and expenditures.

This 2025 Plan also reflects citizen input received over the multi-year development period, as well as innovative ideas for development of our future transportation system. Citizens have expressed a variety of desires for more travel choices, such as added capacity on our roadways and expansion of mass transit.

Current transportation funding at the federal level is provided for in the extensions to the Transportation Equity Act for the 21st Century, TEA-21, which was enacted in 1998 and authorized the surface transportation programs for highways, highway safety, and transit for the 6-year period from 1998-2003. Starting in September 2003, when TEA-21 expired, a series of 60-day extensions have been enacted by Congress. The Transportation Equity Act—Legacy for Users (TEA-LU) is under development now and will authorize federal surface transportation programs through 2009.

Due to time requirements to nominate Kyle's projects for consideration in the Mobility Plan and ultimate selection for the TIP, Kyle's Immediate Needs projects would not be suited for Federal funding. Short term and long term projects could be considered for Federal funding through CAMPO's programs.

6.5.2 Texas Department of Transportation

TxDOT's annual budget, currently $5.8 billion, comes roughly half from the federal government, and half from motor fuels tax and vehicle license fees. The agency's primary responsibility is the construction and maintenance of the state highway system, including Interstate, US, and State Highways as well as Farm-to-Market Roads. They do, on occasion, fund transportation projects of cities, counties, or other agencies, including what are deemed "connectivity corridors" or those funded under Congestion Mitigation and Air Quality. CMAQ funds can be used to improve roadways to reduce congestion and therefore the emissions of idling or slow traffic. As examples of these non-state-highway funding possibilities, the City of Houston received funding from TxDOT for a portion of the full-depth reconstruction of Studewood Street in the Heights, a $7.4 million project.

State Infrastructure Bank

TxDOT also operates the State Infrastructure Bank, which was authorized in 1995 as a part of the National

Highway Designation Act, to help accelerate needed mobility improvements through a variety of financial assistance options made to local entities through state transportation departments.

Since Texas was chosen as one of the ten states to test the pilot program, the state legislature authorized the Texas Department of Transportation (TxDOT) to administer the SIB program in 1997.

The overall goal of the SIB program is to provide innovative financing methods that will add to the list of options available to communities to assist them in meeting their infrastructure needs. The SIB program allows borrowers to access capital funds at or lower-than-market interest rates.

The Texas Transportation Commission, TxDOT's governing body, has approved 42 loans totaling more than $253.4 million from the SIB program. The loans have helped leverage more than $1.81 billion in transportation projects in Texas.

The SIB operates as a revolving loan fund, where the account balance grows through the monthly interest earned and repaid principal and interest payments. In Texas, SIB financial assistance can be granted to any public or private entity authorized to construct, maintain or finance an eligible transportation project.

Projects must be eligible for funding under the existing federal highway rules (Title 23) to comply with SIB requirements. This usually requires a project to be on a state's highway system and included in the statewide Transportation Improvement Plan. The State TIP includes everything in each region's TIP; in Central Texas's case the TIP for SIB purposes is the same TIP administered by HGAC.

Work eligible for SIB funding in Texas includes planning and preliminary studies; feasibility, economical and environmental studies; right of way acquisition; surveying; appraisal and testing; utility relocation; engineering and design; construction; inspection and construction engineering.

As of January 2002, pursuant to Section 1108 of the Department of Defense's FY 2002 Appropriation bill (Public Law 107-117) amending Section 1511(b) of the Transportation Equity Act for the 21st Century (TEA-21), Texas was added to the lists of States (California, Florida, Missouri, and Rhode Island) that are eligible to participate in the TEA-21, PL 105-178 State Infrastructure Bank pilot program.

TxDOT plans to have two separate and distinct pilot programs with separate accounts: (1) The original NHS 350 program and (2) the TEA-21 program, which enables TxDOT to recapitalize its SIB program.

The City of Kyle currently has tentative approve for complete funding of FM 1626 under this program.

Toll Authorities

Roadway tolls are becoming a more common method of financing transportation projects in Texas. Although for a long time, the state has been legislatively prohibited from operating toll roads, that activity has been taken up by cities, counties and regional mobility authorities. Tolls are a common method of repaying construction bonds, either alone or in combination with tax revenue. This can accelerate construction of a roadway otherwise deemed too expensive. Roadways can be a combination of toll and free lanes; for example, Beltway 8 (Figure 8.7) around Houston has free frontage roads under state jurisdiction, but the mainlanes are operated by the Harris County Toll Road Authority and are tolled. Houston's Katy Freeway, whose expansion is currently underway, is planned to have four lanes in the center that are free to high-occupancy vehicles and open to others for a toll. The remainder of the freeway will continue to be free to users.

Tolls are not without controversy, however. In a region such as the southwest where historically tolls have been rare, public acceptance is sometimes limited. The Austin region, for example, has seen a great deal of resistance to the idea of tolling new roadways that are otherwise desired. In Houston, a plan to place tolls on a currently free section of the SH 249 freeway, to raise money for a northward extension, was shelved after great public disapproval.

In a skeptical public climate, it may be possible to pledge that tolls will be removed after the initial construction of the roadway is paid off. This is what happened with IH 30 between Dallas and Fort Worth, as well as IH 264 between Norfolk and Virginia Beach, VA. Two dangers are the budgetary impact of the loss of the revenue stream once the pledge to remove tolls is honored, and the (perhaps accurate) perception of the public that future politicians other than the ones who made the pledge might not honor it.

Pass-Through Financing

A financing method popular in Europe, is the use of pass-through financing, sometimes called "shadow tolls." Despite the name, these are not "tolls" paid directly by the users, but are actually a means of funding the construction and operation of a roadway.

When a government transportation agency, like TxDOT, plans to build a roadway but either doesn't have the money or doesn't think traffic volumes will be very high, another entity such as a regional mobility authority, a municipality or school district, or even a private company may step in to construct the road.

Then, once the road opens to the public, the government agency pays a fee to the facility's builder/operator, for each person or vehicle using it. In a sense, the transportation agency "pays tolls" to the operating company on behalf of the public. This is conceptually similar to selling construction bonds which are then paid off with tax revenue, except in the case of pass-through financing, the initial capital comes from a private company or group of companies, rather than market investors, and the rate of payoff depends on the traffic generated.

An example of this already underway in the Kyle area is the use of Tax-Increment Financing (TIF) to fund the FM 1626 overpass bridge at the UPRR. The City of Kyle has approved a TIF district in the vicinity of Kohler's Crossing and IH 35 (including the Home Depot site). A portion of the tax revenues collected will be sent to TxDOT to reimburse the FM 1626 SIB loan. The extension of FM 1626 to IH 35 will greatly increase the accessibility of the surrounding development, and presumably, further stimulate the economy and increase taxes that it will generate.

6.5.3 Land Donation

A frequent occurrence in fast-developing areas is the donation of land for new roads by the property owners along the right-of-way. This is much more common for new-location roads than it is for widening of existing roads. The rationale is that the landowner expects the new road to improve accessibility enough to increase the value of the remaining land, over and above the amount lost in the right-of-way donation. It is also possible for land to be sold below market rate, under much the same reasoning.

A high-profile example of this was the southwestern quadrant of Beltway 8 in Houston. In the early 1980s, land values were increasing very rapidly in suburban Houston, and the state appraisers simply couldn't keep up with the value increases in the large number of parcels required for the expressway. The developers of the area (correctly) assumed that their land would be worth so much more with an expressway nearby, that it more than made up for the loss of the 300-foot strip desired by the state, and they agreed to sell the land at a price fixed on a certain date, even though the value would be greater by the time the sale closed.

Kyle is currently participating in land donations on a small scale, case-by-case basis. The KTMP will provide comprehensive direction on quantifying future ROW needs in this program.

6.5.4 General Obligation Bonds

Counties and cities often issue general obligation bonds for mobility. In addition to being considered "local match" for TxDOT or federal financing, bonds can pay outright for construction, right-of-way acquisition and engineering work. Repayment can be guaranteed by property taxes, sales taxes, tolls, or any other predictable future income source. Bond issues are a common way to raise revenue for future needs.

6.6 Preliminary Needs Assessment List by Time Frame

The tables on the following four pages provide the complete listing of all projects identified in the Kyle Transportation Master Plan, organized by time frame. A separate chart is presented for those projects deemed to be needed immediately, and in the short- and long-term. Following this is a collection of all the projects in numerical order.

City of Kyle Transportation Master Plan

Preliminary Needs Assessment List
Immediate Priority Projects

ID	Name	Improvement	From	To	Construction Cost	Term	Owner	Source	Classification	Right-of-Way	Length (miles)	Follow-UP	Category	Engineering Cost	ROW Cost	Construction Oversight	Contingency	TOTAL COST
B1	IH 35	Bridge Replacement	at Center St			Immediate	TxDOT	TxDOT	Freeway	0		Contact TxDOT to verify	B	$0.00	$0.00	$0.00	$0.00	**$0.00**
B2	IH 35	Widen Overpass	At Dry Hole -	Windy Hill		Immediate	TxDOT	TxDOT	Freeway	0		Signature bridge location. Contact TxDOT to verify	B	$0.00	$0.00	$0.00	$0.00	**$0.00**
B3	IH 35	Bridge Replacement	At FM 1626/NLR2			Immediate	TxDOT	TxDOT	Freeway	0		Contact TxDOT to verify	B	$0.00	$0.00	$0.00	$0.00	**$0.00**
I2	IH 35	Improve ramp intersection at frontage rd	at CR 122 (Beebe)			Immediate	TxDOT	HCISD	Freeway	0		Suggest to TxDOT that entrance ramp be moved north 200'.	I	$0.00	$0.00	$0.00	$0.00	**$0.00**
I4	IH 35	Improve ramp intersection at frontage rd	at FM 150			Immediate	TxDOT	Kyle PD	Freeway	0		This item should be under construction to convert frontage roads to 1-way operation.	I	$0.00	$0.00	$0.00	$0.00	**$0.00**
I5	Goforth	Right turn lane	At school		$250,000.00	Immediate	Kyle	KTMP	Collector	0		Interim action prior to widening Goforth	I	$37,500.00	$0.00	$25,000.00	$46,875.00	**$359,375.00**
I6	CR 158	Eliminate intersection skew	CR 134		$50,000.00	Immediate	Kyle	KTMP	Thoroughfare	0		Not all turns currently possible	I	$7,500.00	$0.00	$5,000.00	$9,375.00	**$71,875.00**
NLR1	FM 1626	New location 4 lanes	FM 2770	IH 35	$6,488,437.83	Immediate	TxDOT	Mobility 2030	Thoroughfare	110	2.95	ROW purchased by Hays County. Overpass at UPRR	NLR	$973,265.67	$10,277,685.53	$1,167,918.81	$2,836,096.18	**$21,743,404.02**
NLR2	1626-Bunton	New location 4 lanes	IH 35	Bunton / Goforth	$1,373,306.64	Immediate	Kyle	KTMP	Thoroughfare	110	0.62	New location arterial to create east-west passage across I-35 and UPRR. Designate as FM 1626	NLR	$205,996.00	$2,175,317.71	$247,195.19	$600,272.33	**$4,602,087.87**
R2	IH 35	Convert frontage roads to one-way operation				Immediate	TxDOT	TxDOT	Freeway	100		contact TxDOT Area Office to obtain status. Appears to be under construction.	R	$0.00	$0.00	$0.00	$0.00	**$0.00**
R3	IH 35	Construct Frontage Rd	Dry Hole	FM 1626		Immediate	TxDOT	TxDOT	Freeway	100	1.67	Contact TxDOT to verify	R	$0.00	$2,641,270.08	$0.00	$396,190.51	**$3,037,460.60**
R9	Goforth	Widen to 3 or 4 Lanes	IH 35	Bunton	$1,823,902.41	Immediate	Kyle	KTMP	Collector	60	1.22	Limited ROW. Replace bridge at Plum Ck.	R	$273,585.36	$1,155,624.56	$182,390.24	$515,325.39	**$3,950,827.96**
R12	Dry Hole	Widen to 4-lanes	Kohler	IH 35	$1,491,954.18	Immediate	Kyle	KTMP	Collector	60	0.99	Duplicates proposed new IH 35 frontage road.	R	$223,793.13	$945,302.17	$149,195.42	$421,536.73	**$3,231,781.62**
S1	IH 35	Install traffic signal	At Windy Hill		$100,000.00	Immediate	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
S2	IH 35	Install traffic signal	At FM 1626 / NLR2		$100,000.00	Immediate	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
S3	Goforth	Install traffic signal	At Bunton		$100,000.00	Immediate	Kyle	KTMP		0	0.00	High priority due to northern location for connection from Windy Hill to Kohlers across I-35	S	$25,000.00	$0.00	$10,000.00	$20,250.00	**$155,250.00**
S4	Goforth	Install traffic signal	At Lehman		$100,000.00	Immediate	Kyle	KTMP		0	0.00	Improve sight distance in east quadrant.	S	$25,000.00	$0.00	$10,000.00	$20,250.00	**$155,250.00**
S5	IH 35	Install traffic signal	At Center		$100,000.00	Immediate	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
S6	Center	Install traffic signal	at Old 81		$375,000.00	Immediate	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding; includes minor widening	S	$93,750.00	$0.00	$37,500.00	$75,937.50	**$582,187.50**
S7	Center	Install traffic signal	At Burleson		$100,000.00	Immediate	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$10,000.00	$20,250.00	**$155,250.00**
S8	Center	Install traffic signal	At FM 150		$100,000.00	Immediate	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
TOTALS					$12,552,601.05									$1,990,390.16	$17,195,200.05	$1,916,199.66	$5,048,158.64	**$38,702,549.56**

City of Kyle Transportation Master Plan

Preliminary Needs Assessment List
Short-Term Projects

ID	Name	Improvement	From	To	Construction Cost	Term	Owner	Source	Classification	Right-of-Way	Length (miles)	Follow-UP	Category	Engineering Cost	ROW Cost	Construction Oversight	Contingency	TOTAL COST
B6	IH 35	New bridge	FM 150	FM 150		Short Term	TxDOT	KTMP	Freeway	0	0.00	Potential addition--present to TxDOT	B	$0.00	$0.00	$0.00	$0.00	**$0.00**
NLR9	IH 35	Construct frontage road	US 81	US 81	$3,060,923.18	Short Term	TxDOT	KTMP	Freeway	100	1.39	Option to improving Old 81 to 3 lanes. TxDOT funded.	NLR	$459,138.48	$4,407,729.38	$550,966.17	$1,271,813.58	**$9,750,570.79**
R4	FM 150	Widen to 4 lanes	FM 3237	FM 2770	$3,735,151.13	Short Term	TxDOT	Mobility 2030	Thoroughfare	110	1.70	4-lane major arterial, TxDOT/FHWA/County	R	$560,272.67	$2,958,239.70	$672,327.20	$1,188,898.60	**$9,114,889.30**
R5	FM 150	Widen to 4 lanes	FM 2770	Center St.	$3,624,164.88	Short Term	TxDOT	Mobility 2030	Thoroughfare	110	1.65	May want closed storm sewer system.	R	$543,624.73	$2,870,338.58	$652,349.68	$1,153,571.68	**$8,844,049.55**
R7	FM 150 (Hill)	Widen to 4-lanes	IH 35	SH 21	$7,774,066.36	Short Term	TxDOT	Mobility 2030	Thoroughfare	110	3.53		R	$1,166,109.95	$6,157,060.55	$1,399,331.94	$2,474,485.32	**$18,971,054.13**
R8	FM 2770	Widen to 4 lanes	FM 1626	FM 150	$6,742,388.12	Short Term	TxDOT	Mobility 2030	Thoroughfare	110	3.06		R	$1,011,358.22	$5,339,971.39	$1,213,629.86	$2,146,102.14	**$16,453,449.74**
R10	Lehman	Widen to 4-lanes	Hill	Bunton	$2,918,522.52	Short Term	Kyle	KTMP	Arterial	80	1.62	Update Plum Creek culvert capacity.	R	$437,778.38	$2,054,639.86	$291,852.25	$855,418.95	**$6,558,211.96**
R11	Windy Hill	Widen to 4-lanes	IH 35	Dacy Ln	$3,898,626.31	Short Term	Kyle	KTMP	Thoroughfare	110	1.77	Subdivisions exist along S. ROW, but straightening of alignment should be possible to the north	R	$584,793.95	$3,087,712.04	$389,862.63	$1,194,149.24	**$9,155,144.16**
R13	Kohlers Crossing	Widen to 4-lanes	FM 2770	FM 1626	$1,916,369.18	Short Term	Kyle	KTMP	Arterial	80	0.87		R	$287,455.38	$1,103,828.65	$191,636.92	$524,893.52	**$4,024,183.64**
R14	Kohlers Crossing	Widen to 4-lanes	FM 1626	Dry Hole	$5,258,000.00	Short Term	Kyle	KTMP	Arterial	80	2.39	UPRR Crossing	R	$788,700.00	$3,028,608.00	$525,800.00	$1,440,166.20	**$11,041,274.20**
R15	Burleson	Widen to 3-lanes	Center	IH 35	$2,630,525.67	Short Term	Kyle	KTMP	Collector	60	1.20		R	$394,578.85	$1,136,387.09	$263,052.57	$663,681.63	**$5,088,225.81**
R17	Goforth	Widen to 4 lanes	Bunton Ck. Rd.	Bunton Ln.	$2,783,685.46	Short Term	Kyle	KTMP	Thoroughfare	110	1.27	Designate as FM 1626	R	$417,552.82	$2,204,678.88	$278,368.55	$852,642.86	**$6,536,928.56**
S9	Center	Install traffic signal	At Old Stagecoach		$100,000.00	Short Term	Kyle	KTMP		0	0.00		S	$25,000.00	$0.00	$10,000.00	$20,250.00	**$155,250.00**
S10	FM 150 (Hill)	Install traffic signal	At IH 35		$100,000.00	Short Term	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
S11	FM 150 (Hill)	Install traffic signal	At Lehman		$100,000.00	Short Term	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
S12	FM 2770	Install traffic signal	At FM 150		$100,000.00	Short Term	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
S13	FM 1626	Install traffic signal	At Kohlers Crossing		$100,000.00	Short Term	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
S14	Kohlers Crossing	Install traffic signal	At Dry Hole		$100,000.00	Short Term	Kyle	KTMP		0	0.00		S	$25,000.00	$0.00	$10,000.00	$20,250.00	**$155,250.00**
	UPRR	Increase RR crossing sight distances	at various crossings				UPRR	HCISD		100	0.00	Ask UPRR to clear brush from RR ROW.		$0.00	$0.00	$0.00	$0.00	**$0.00**
	Center St	Improve parking/pedestrian safety	downtown		$500,000.00	Short Term	Kyle	Kyle PD		100	0.00	Reconfigure parking to improve sight distances. Lower traffic speeds. Improve pedestrian safety. This may be an amendment to TxDOT project		$75,000.00	$0.00	$50,000.00	$93,750.00	**$718,750.00**
TOTALS					$45,442,422.81									$6,876,363.42	$34,349,194.12	$6,571,177.77	$13,985,873.72	**$107,225,031.84**

City of Kyle Transportation Master Plan

Preliminary Needs Assessment List
Long-Term Projects

ID	Name	Improvement	From	To	Construction Cost	Term	Owner	Source	Classification	Right-of-Way	Length (miles)	Follow-UP	Category	Engineering Cost	ROW Cost	Construction Oversight	Contingency	TOTAL COST
B4	IH 35	New Bridge	At Opal Ln			Long Term	TxDOT	Kyle	Freeway	0		Preferred South Loop Location	B	$0.00	$0.00	$0.00	$0.00	**$0.00**
B5	IH 35	New Bridge	At Yarrington			Long Term	TxDOT	Kyle	Freeway	0		Alternate South Loop Location	B	$0.00	$0.00	$0.00	$0.00	**$0.00**
I1	IH 35	Increase intersection turning radii	at CR 130 (Bunton)			Long Term	TxDOT	HCISD	Freeway	0		This item should be under construction to convert frontage roads to 1-way operation.	I	$0.00	$0.00	$0.00	$0.00	**$0.00**
I3	IH 35	Eliminate intersection skew	at CR 131 (Windy Hill)			Long Term	TxDOT	HCISD	Freeway	0		This improvement should be addressed during expansion of IH 35 to 6 lanes	I	$0.00	$0.00	$0.00	$0.00	**$0.00**
NLR3	Lehman	New 4-lane	Lehman	Cotton Gin extension	$837,257.48	Long Term	Kyle	KTMP	Arterial	80	0.47	Re-align to go next to South Lake Ranch subdivision	NLR	$125,588.62	$1,178,858.53	$83,725.75	$333,814.56	**$2,559,244.95**
NLR4	Cotton Gin	New 4-lane extending Cotton Gin to FM 1626	IH 35	Cotton Gin	$5,804,776.76	Long Term	Kyle	KTMP	Arterial	80	3.22	conflicts with existing and planned subdivisions	NLR	$870,716.51	$8,173,125.68	$580,477.68	$2,314,364.49	**$17,743,461.12**
NLR5	Burleson	New 3 lanes	Center	Allen	$556,163.12	Long Term	Kyle	KTMP	Arterial	80	0.31		NLR	$83,424.47	$783,077.67	$55,616.31	$221,742.23	**$1,700,023.80**
NLR6	Burleson	New 4 lanes	Yarrington	Opal	$3,364,822.97	Long Term	Kyle	KTMP	Thoroughfare	110	1.53		NLR	$504,723.45	$5,329,879.58	$336,482.30	$1,430,386.24	**$10,966,294.53**
NLR7	Burleson	New 4 lanes	Opal	Allen	$1,180,885.75	Long Term	Kyle	KTMP	Arterial	80	0.66		NLR	$177,132.86	$1,662,687.14	$118,088.58	$470,819.15	**$3,609,613.47**
NLR8	Burleson	New 4 lanes	FM 1626	Kohlers Crossing	$2,124,000.00	Long Term	Kyle	KTMP	Arterial	80	1.18		NLR	$318,600.00	$2,990,592.00	$212,400.00	$846,838.80	**$6,492,430.80**
NLR10	Burleson	New 4 lanes	Spring Branch	FM 1626	$2,749,197.25	Long Term	Kyle	KTMP	Arterial	80	1.53		NLR	$412,379.59	$3,870,869.72	$274,919.72	$1,096,104.94	**$8,403,471.22**
NLR11		New 3 lanes	Burleson	FM 1626	$1,635,000.00	Long Term	Kyle	KTMP	Collector	60	1.09		NLR	$245,250.00	$2,071,872.00	$163,500.00	$617,343.30	**$4,732,965.30**
NLR12	Yarrington	New 4 lanes	Old Stagecoach	IH 35	$2,797,231.67	Long Term	Kyle	KTMP	Arterial	80	1.55		NLR	$419,584.75	$3,938,502.19	$279,723.17	$1,115,256.27	**$8,550,298.05**
NLR13		New 4 lanes	Yarrington	FM 150	$4,759,269.03	Long Term	Kyle	KTMP	Thoroughfare	110	2.16		NLR	$713,890.35	$7,538,682.14	$475,926.90	$2,023,165.26	**$15,510,933.68**
NLR14		New 4 lanes	FM 150	Bunton	$3,898,428.75	Long Term	Kyle	KTMP	Thoroughfare	110	1.77		NLR	$584,764.31	$6,175,111.14	$389,842.87	$1,657,222.06	**$12,705,369.14**
NLR15		New 4 lanes	Bunton	High	$3,292,065.26	Long Term	Kyle	KTMP	Thoroughfare	110	1.50		NLR	$493,809.79	$5,214,631.38	$329,206.53	$1,399,456.94	**$10,729,169.90**
NLR16		New 4 lanes	Bebee	NLR20	$1,309,517.52	Long Term	Kyle	KTMP	Thoroughfare	110	0.60		NLR	$196,427.63	$2,074,275.76	$130,951.75	$556,675.90	**$4,267,848.56**
NLR17		New 4 lanes	LP 4	Dry Hole	$1,632,528.12	Long Term	Kyle	KTMP	Thoroughfare	110	0.74	Route requested by Buda	NLR	$244,879.22	$2,585,924.55	$163,252.81	$693,987.70	**$5,320,572.40**
NLR18		New 4 lanes	CR 158	Hill	$1,726,208.55	Long Term	Kyle	KTMP	Thoroughfare	110	0.78		NLR	$258,931.28	$2,734,314.34	$172,620.85	$733,811.25	**$5,625,886.28**
NLR19		New 4 lanes	IH 35	NLR13	$1,394,470.90	Long Term	Kyle	KTMP	Arterial	80	0.77		NLR	$209,170.63	$1,963,415.02	$139,447.09	$555,975.55	**$4,262,479.19**
NLR20		New 4 lanes	Bebee	Windy Hill	$3,818,170.67	Long Term	Kyle	KTMP	Thoroughfare	110	1.74		NLR	$572,725.60	$6,047,982.34	$381,817.07	$1,623,104.35	**$12,443,800.03**
NLR21	Opal Ln	New 4 lanes	Old Stagecoach	Blanco R.	$3,710,007.73	Long Term	Kyle	KTMP	Thoroughfare	110	1.69		NLR	$556,501.16	$5,876,652.25	$371,000.77	$1,577,124.29	**$12,091,286.20**
NLR22		New 4 lanes	Dry Hole	FM 1626	$3,038,901.07	Long Term	Kyle	KTMP	Thoroughfare	110	1.38	Alternate location for north loop	NLR	$455,835.16	$4,813,619.30	$303,890.11	$1,291,836.85	**$9,904,082.49**
NLR23		New 4 lanes	FM 1626	FM 2770	$2,085,492.84	Long Term	Kyle	KTMP	Thoroughfare	110	0.95	Alternate location for north loop	NLR	$312,823.93	$3,303,420.65	$208,549.28	$886,543.00	**$6,796,829.70**
NLR24		New 4 lanes	Old Stagecoach		$4,428,456.43	Long Term	Kyle	KTMP	Thoroughfare	110	2.01		NLR	$664,268.46	$7,014,674.98	$442,845.64	$1,882,536.83	**$14,432,782.34**
NLR25		New 4 lanes	FM 110	CR 158	$3,139,513.64	Long Term	Kyle	KTMP	Thoroughfare	110	1.43		NLR	$470,927.05	$4,972,989.61	$313,951.36	$1,334,607.25	**$10,231,988.92**
NLR26		New 4 lanes	NLR20	Windy Hill	$2,488,177.07	Long Term	Kyle	KTMP	Thoroughfare	110	1.13	Alternate to R11, NE corner of Loop.	NLR	$373,226.56	$3,941,272.48	$248,817.71	$1,057,724.07	**$8,109,217.90**
NLR27		New 4 lanes	Stagecoach	IH 35	$2,090,000.00	Long Term	Kyle	KTMP	Thoroughfare	110	0.95	SW segment of loop	NLR	$313,500.00	$3,310,560.00	$209,000.00	$888,459.00	**$6,811,519.00**
R1	IH 35	Expand to 6 Lanes. Includes new location overpasses	FM 2001	LP 82		Long Term	TxDOT	Mobility 2030	Freeway	100	6.99	This is the opportunity for Kyle to include location of East-West access across I-35	R	$0.00	$11,080,023.01	$0.00	$1,662,003.45	**$12,742,026.46**
R6	FM 150	Improve Center St.	Center St	IH 35	$1,151,157.84	Long Term	TxDOT	Mobility 2030	Arterial	80	0.64	Mobility 2030 not clear. Downtown needs streetscape improvements. FM 150 needs new location to relieve downtown.	R	$172,673.68	$810,415.12	$207,208.41	$351,218.26	**$2,692,673.31**
R16	Old 81	Widen to 3-lanes	West 35 Ftg Rd		$2,160,891.22	Long Term	Kyle	KTMP	Collector	60	1.44	Much of existing observed traffic will be relieved by construction of NLR2	R	$324,133.68	$1,369,140.68	$216,089.12	$610,538.20	**$4,680,792.90**
R18	Bunton	Widen to 4 lanes	Goforth	Dairy Rd.	$5,479,966.20	Long Term	Kyle	KTMP	Thoroughfare	110	2.49		R	$821,994.93	$4,340,133.23	$547,996.62	$1,678,513.65	**$12,868,604.63**
R19	Bebee	Widen to 4 lanes	IH 35		$2,339,568.28	Long Term	Kyle	KTMP	Thoroughfare	110	1.06		R	$350,935.24	$1,852,938.07	$233,956.83	$716,609.76	**$5,494,008.18**
R20	High	Widen to 4 lanes			$4,425,981.25	Long Term	Kyle	KTMP	Thoroughfare	110	2.01		R	$663,897.19	$3,505,377.15	$442,598.13	$1,355,678.06	**$10,393,531.77**
R21	Dacy	Widen to 4 lanes	Bunton	Bebee	$3,096,792.50	Long Term	Kyle	KTMP	Thoroughfare	110	1.41		R	$464,518.88	$2,452,659.66	$309,679.25	$948,547.54	**$7,272,197.83**
R22	Old Stagecoach	Widen to 4 lanes	FM 150	Center	$3,482,856.34	Long Term	Kyle	KTMP	Thoroughfare	110	1.58		R	$522,428.45	$2,758,422.22	$348,285.63	$1,066,798.90	**$8,178,791.54**
R23	Old Stagecoach	Widen to 4 lanes	Center	FM 110	$6,079,772.48	Long Term	Kyle	KTMP	Thoroughfare	110	2.76		R	$911,965.87	$4,815,179.80	$607,977.25	$1,862,234.31	**$14,277,129.71**
R24 (a)	Opal Ln	Widen to 4 lanes	Old Stagecoach	new Loop	$1,672,000.00	Long Term	Kyle	KTMP	Arterial	80	0.76		R	$250,800.00	$963,072.00	$167,200.00	$457,960.80	**$3,511,032.80**
R24 (b)	Opal Ln	Widen to 2 lanes	new Loop	IH 35	$1,210,000.00	Long Term	Kyle	KTMP	Collector	60	0.55		R	$181,500.00	$522,720.00	$121,000.00	$305,283.00	**$2,340,503.00**
R25	Opal Ln	Widen to 4 lanes	IH 35	CR 158	$6,547,556.03	Long Term	Kyle	KTMP	Thoroughfare	110	2.98		R	$982,133.40	$5,185,664.38	$654,755.60	$2,005,516.41	**$15,375,625.83**
R26	Roland	Widen to 4 lanes	Old Stagecoach	IH 35	$3,484,283.33	Long Term	Kyle	KTMP	Thoroughfare	110	1.58		R	$522,642.50	$2,759,552.40	$348,428.33	$1,067,235.99	**$8,182,142.55**
R27	Cypress Rd	Widen to 4 lanes	Old Stagecoach	Blanco River	$3,239,664.47	Long Term	Kyle	KTMP	Thoroughfare	110	1.47		R	$485,949.67	$2,565,814.26	$323,966.45	$992,309.23	**$7,607,704.07**
R28		Widen to 4 lanes	Windy Hill	Kelly Smith	$1,373,804.26	Long Term	Kyle	KTMP	Thoroughfare	110	0.62		R	$206,070.64	$1,088,052.97	$137,380.43	$420,796.24	**$3,226,104.53**
R29	East Post Rd	Widen to 2 lanes	NLR 19	R25	$1,199,858.66	Long Term	Kyle	KTMP	Collector	60	0.80		R	$179,978.80	$760,230.45	$119,985.87	$339,008.07	**$2,599,061.85**
R30	Center St	Widen to 4 lanes	Old Stagecoach	FM 150	$1,241,329.60	Long Term	Kyle	KTMP	Thoroughfare	110	0.56		R	$186,199.44	$983,133.04	$124,132.96	$380,219.26	**$2,915,014.30**
R31	Scott	Widen to 4 lanes	Center	Opal	$1,653,108.70	Long Term	Kyle	KTMP	Thoroughfare	110	0.75		R	$247,966.30	$1,309,262.09	$165,310.87	$506,347.19	**$3,881,995.16**
TOTALS					$113,699,133.73									$17,054,870.06	$146,688,780.98	$11,462,006.00	$43,335,718.62	**$332,240,509.38**

City of Kyle Transportation Master Plan

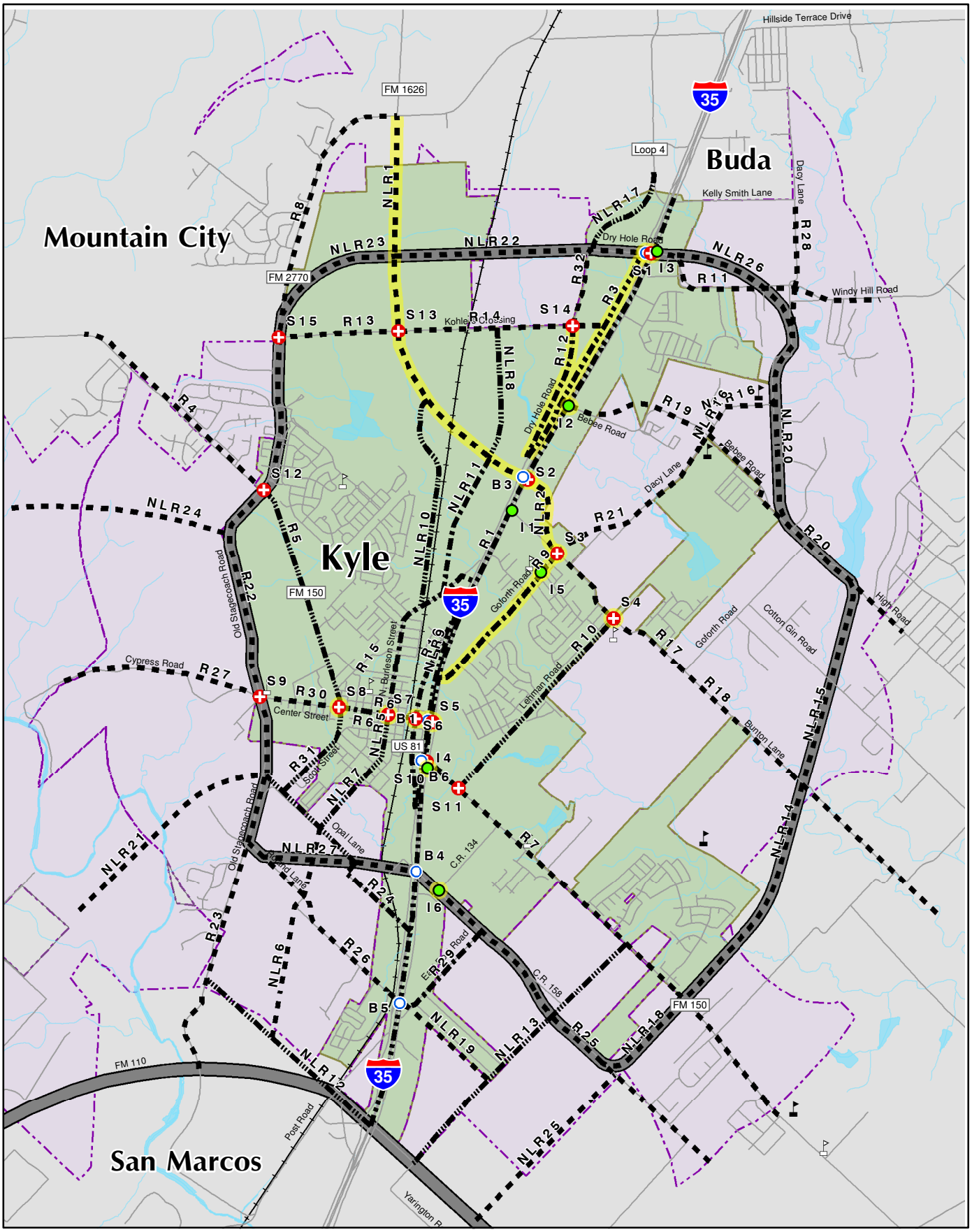
Preliminary Needs Assessment List
All Listed Projects

ID	Name	Improvement	From	To	Construction Cost	Term	Owner	Source	Classification	Right-of-Way	Length (miles)	Follow-UP	Category	Engineering Cost	ROW Cost	Construction Oversight	Contingency	TOTAL COST
B1	IH 35	Bridge Replacement	at Center St			Immediate	TxDOT	TxDOT	Freeway	0		Contact TxDOT to verify	B	$0.00	$0.00	$0.00	$0.00	**$0.00**
B2	IH 35	Widen Overpass	At Dry Hole	Windy Hill		Immediate	TxDOT	TxDOT	Freeway	0		Signature bridge location. Contact TxDOT to verify	B	$0.00	$0.00	$0.00	$0.00	**$0.00**
B3	IH 35	Bridge Replacement	At FM 1626/NLR2			Immediate	TxDOT	TxDOT	Freeway	0		Contact TxDOT to verify	B	$0.00	$0.00	$0.00	$0.00	**$0.00**
B4	IH 35	New Bridge	At Opal Ln			Long Term	TxDOT	Kyle	Freeway	0		Preferred South Loop Location	B	$0.00	$0.00	$0.00	$0.00	**$0.00**
B5	IH 35	New Bridge	At Yarrington			Long Term	TxDOT	Kyle	Freeway	0		Alternate South Loop Location	B	$0.00	$0.00	$0.00	$0.00	**$0.00**
B6	IH 35	New bridge	FM 150	FM 150		Short Term	TxDOT	KTMP	Freeway	0	0.00	Potential addition--present to TxDOT	B	$0.00	$0.00	$0.00	$0.00	**$0.00**
I1	IH 35	Increase intersection turning radii	at CR 130 (Bunton)			Long Term	TxDOT	HCISD	Freeway	0		This item should be under construction to convert frontage roads to 1-way operation.	I	$0.00	$0.00	$0.00	$0.00	**$0.00**
I2	IH 35	Improve ramp intersection at frontage rd	at CR 122 (Beebe)			Immediate	TxDOT	HCISD	Freeway	0		Suggest to TxDOT that entrance ramp be moved north 200'.	I	$0.00	$0.00	$0.00	$0.00	**$0.00**
I3	IH 35	Eliminate intersection skew	at CR 131 (Windy Hill)			Long Term	TxDOT	HCISD	Freeway	0		This improvement should be addressed during expansion of IH 35 to 6 lanes	I	$0.00	$0.00	$0.00	$0.00	**$0.00**
I4	IH 35	Improve ramp intersection at frontage rd	at FM 150			Immediate	TxDOT	Kyle PD	Freeway	0		This item should be under construction to convert frontage roads to 1-way operation.	I	$0.00	$0.00	$0.00	$0.00	**$0.00**
I5	Goforth	Right turn lane	At school		$250,000.00	Immediate	Kyle	KTMP	Collector	0		Interim action prior to widening Goforth	I	$37,500.00	$0.00	$25,000.00	$46,875.00	**$359,375.00**
I6	CR 158	Eliminate intersection skew	CR 134		$50,000.00	Immediate	Kyle	KTMP	Thoroughfare	0		Not all turns currently possible	I	$7,500.00	$0.00	$5,000.00	$9,375.00	**$71,875.00**
NLR1	FM 1626	New location 4 lanes	FM 2770	IH 35	$6,488,437.83	Immediate	TxDOT	Mobility 2030	Thoroughfare	110	2.95	ROW purchased by Hays County. Overpass at UPRR	NLR	$973,265.67	$10,277,685.53	$1,167,918.81	$2,836,096.18	**$21,743,404.02**
NLR2	1626-Bunton	New location 4 lanes	IH 35	Bunton / Goforth	$1,373,306.64	Immediate	Kyle	KTMP	Thoroughfare	110	0.62	New location arterial to create east-west passage across I-35 and UPRR. Designate as FM 1626	NLR	$205,996.00	$2,175,317.71	$247,195.19	$600,272.33	**$4,602,087.87**
NLR3	Lehman	New 4-lane	Lehman	Cotton Gin extension	$837,257.48	Long Term	Kyle	KTMP	Arterial	80	0.47	Re-align to go next to South Lake Ranch subdivision	NLR	$125,588.62	$1,178,858.53	$83,725.75	$333,814.56	**$2,559,244.95**
NLR4	Cotton Gin	New 4-lane extending Cotton Gin to FM 1626	IH 35	Cotton Gin	$5,804,776.76	Long Term	Kyle	KTMP	Arterial	80	3.22	conflicts with existing and planned subdivisions	NLR	$870,716.51	$8,173,125.68	$580,477.68	$2,314,364.49	**$17,743,461.12**
NLR5	Burleson	New 3 lanes	Center	Allen	$556,163.12	Long Term	Kyle	KTMP	Arterial	80	0.31		NLR	$83,424.47	$783,077.67	$55,616.31	$221,742.23	**$1,700,023.80**
NLR6	Burleson	New 4 lanes	Yarrington	Opal	$3,364,822.97	Long Term	Kyle	KTMP	Thoroughfare	110	1.53		NLR	$504,723.45	$5,329,879.58	$336,482.30	$1,430,386.24	**$10,966,294.53**
NLR7	Burleson	New 4 lanes	Opal	Allen	$1,180,885.75	Long Term	Kyle	KTMP	Arterial	80	0.66		NLR	$177,132.86	$1,662,687.14	$118,088.58	$470,819.15	**$3,609,613.47**
NLR8	Burleson	New 4 lanes	FM 1626	Kohlers Crossing	$2,124,000.00	Long Term	Kyle	KTMP	Arterial	80	1.18		NLR	$318,600.00	$2,990,592.00	$212,400.00	$846,838.80	**$6,492,430.80**
NLR9	IH 35	Construct frontage road	US 81	US 81	$3,060,923.18	Short Term	TxDOT	KTMP	Freeway	100	1.39	Option to improving Old 81 to 3 lanes. TxDOT funded.	NLR	$459,138.48	$4,407,729.38	$550,966.17	$1,271,813.58	**$9,750,570.79**
NLR10	Burleson	New 4 lanes	Spring Branch	FM 1626	$2,749,197.25	Long Term	Kyle	KTMP	Arterial	80	1.53		NLR	$412,379.59	$3,870,869.72	$274,919.72	$1,096,104.94	**$8,403,471.22**
NLR11		New 3 lanes	Burleson	FM 1626	$1,635,000.00	Long Term	Kyle	KTMP	Collector	60	1.09		NLR	$245,250.00	$2,071,872.00	$163,500.00	$617,343.30	**$4,732,965.30**
NLR12	Yarrington	New 4 lanes	Old Stagecoach	IH 35	$2,797,231.67	Long Term	Kyle	KTMP	Arterial	80	1.55		NLR	$419,584.75	$3,938,502.19	$279,723.17	$1,115,256.27	**$8,550,298.05**
NLR13		New 4 lanes	Yarrington	FM 150	$4,759,269.03	Long Term	Kyle	KTMP	Thoroughfare	110	2.16		NLR	$713,890.35	$7,538,682.14	$475,926.90	$2,023,165.26	**$15,510,933.68**
NLR14		New 4 lanes	FM 150	Bunton	$3,898,428.75	Long Term	Kyle	KTMP	Thoroughfare	110	1.77		NLR	$584,764.31	$6,175,111.14	$389,842.87	$1,657,222.06	**$12,705,369.14**
NLR15		New 4 lanes	Bunton	High	$3,292,065.26	Long Term	Kyle	KTMP	Thoroughfare	110	1.50		NLR	$493,809.79	$5,214,631.38	$329,206.53	$1,399,456.94	**$10,729,169.90**
NLR16		New 4 lanes	Bebee	NLR20	$1,309,517.52	Long Term	Kyle	KTMP	Thoroughfare	110	0.60		NLR	$196,427.63	$2,074,275.76	$130,951.75	$556,675.90	**$4,267,848.56**
NLR17		New 4 lanes	LP 4	Dry Hole	$1,632,528.12	Long Term	Kyle	KTMP	Thoroughfare	110	0.74	Route requested by Buda	NLR	$244,879.22	$2,585,924.55	$163,252.81	$693,987.70	**$5,320,572.40**
NLR18		New 4 lanes	CR 158	Hill	$1,726,208.55	Long Term	Kyle	KTMP	Thoroughfare	110	0.78		NLR	$258,931.28	$2,734,314.34	$172,620.85	$733,811.25	**$5,625,886.28**
NLR19		New 4 lanes	IH 35	NLR13	$1,394,470.90	Long Term	Kyle	KTMP	Arterial	80	0.77		NLR	$209,170.63	$1,963,415.02	$139,447.09	$555,975.55	**$4,262,479.19**
NLR20		New 4 lanes	Bebee	Windy Hill	$3,818,170.67	Long Term	Kyle	KTMP	Thoroughfare	110	1.74		NLR	$572,725.60	$6,047,982.34	$381,817.07	$1,623,104.35	**$12,443,800.03**
NLR21	Opal Ln	New 4 lanes	Old Stagecoach	Blanco R.	$3,710,007.73	Long Term	Kyle	KTMP	Thoroughfare	110	1.69		NLR	$556,501.16	$5,876,652.25	$371,000.77	$1,577,124.29	**$12,091,286.20**
NLR22		New 4 lanes	Dry Hole	FM 1626	$3,038,901.07	Long Term	Kyle	KTMP	Thoroughfare	110	1.38	Alternate location for north loop	NLR	$455,835.16	$4,813,619.30	$303,890.11	$1,291,836.85	**$9,904,082.49**
NLR23		New 4 lanes	FM 1626	FM 2770	$2,085,492.84	Long Term	Kyle	KTMP	Thoroughfare	110	0.95	Alternate location for north loop	NLR	$312,823.93	$3,303,420.65	$208,549.28	$886,543.00	**$6,796,829.70**
NLR24		New 4 lanes	Old Stagecoach		$4,428,456.43	Long Term	Kyle	KTMP	Thoroughfare	110	2.01		NLR	$664,268.46	$7,014,674.98	$442,845.64	$1,882,536.83	**$14,432,782.34**
NLR25		New 4 lanes	FM 110	CR 158	$3,139,513.64	Long Term	Kyle	KTMP	Thoroughfare	110	1.43		NLR	$470,927.05	$4,972,989.61	$313,951.36	$1,334,607.25	**$10,231,988.92**
NLR26		New 4 lanes	NLR20	Windy Hill	$2,488,177.07	Long Term	Kyle	KTMP	Thoroughfare	110	1.13	Alternate to R11, NE corner of Loop.	NLR	$373,226.56	$3,941,272.48	$248,817.71	$1,057,724.07	**$8,109,217.90**
NLR27		New 4 lanes	Stagecoach	IH 35	$2,090,000.00	Long Term	Kyle	KTMP	Thoroughfare	110	0.95	SW segment of loop	NLR	$313,500.00	$3,310,560.00	$209,000.00	$888,459.00	**$6,811,519.00**
R1	IH 35	Expand to 6 Lanes. Includes new location overpasses	FM 2001	LP 82		Long Term	TxDOT	Mobility 2030	Freeway	100	6.99	This is the opportunity for Kyle to include location of East-West access across I-35	R	$0.00	$11,080,023.01	$0.00	$1,662,003.45	**$12,742,026.46**
R2	IH 35	Convert frontage roads to one-way operation				Immediate	TxDOT	TxDOT	Freeway	100		contact TxDOT Area Office to obtain status. Appears to be under construction.	R	$0.00	$0.00	$0.00	$0.00	**$0.00**
R3	IH 35	Construct Frontage Rd	Dry Hole	FM 1626		Immediate	TxDOT	TxDOT	Freeway	100	1.67	Contact TxDOT to verify	R	$0.00	$2,641,270.08	$0.00	$396,190.51	**$3,037,460.60**
R4	FM 150	Widen to 4 lanes	FM 3237	FM 2770	$3,735,151.13	Short Term	TxDOT	Mobility 2030	Thoroughfare	110	1.70	4-lane major arterial, TxDOT/FHWA/County	R	$560,272.67	$2,958,239.70	$672,327.20	$1,188,898.60	**$9,114,889.30**
R5	FM 150	Widen to 4 lanes	FM 2770	Center St.	$3,624,164.88	Short Term	TxDOT	Mobility 2030	Thoroughfare	110	1.65	May want closed storm sewer system.	R	$543,624.73	$2,870,338.58	$652,349.68	$1,153,571.68	**$8,844,049.55**
R6	FM 150	Improve Center St.	Center St	IH 35	$1,151,157.84	Long Term	TxDOT	Mobility 2030	Arterial	80	0.64	Mobility 2030 not clear. Downtown needs streetscape improvements. FM 150 needs new location to relieve downtown.	R	$172,673.68	$810,415.12	$207,208.41	$351,218.26	**$2,692,673.31**
R7	FM 150 (Hill)	Widen to 4-lanes	IH 35	SH 21	$7,774,066.36	Short Term	TxDOT	Mobility 2030	Thoroughfare	110	3.53		R	$1,166,109.95	$6,157,060.55	$1,399,331.94	$2,474,485.32	**$18,971,054.13**
R8	FM 2770	Widen to 4 lanes	FM 1626	FM 150	$6,742,388.12	Short Term	TxDOT	Mobility 2030	Thoroughfare	110	3.06		R	$1,011,358.22	$5,339,971.39	$1,213,629.86	$2,146,102.14	**$16,453,449.74**
R9	Goforth	Widen to 3 or 4 Lanes	IH 35	Bunton	$1,823,902.41	Immediate	Kyle	KTMP	Collector	60	1.22	Limited ROW. Replace bridge at Plum Ck.	R	$273,585.36	$1,155,624.56	$182,390.24	$515,325.39	**$3,950,827.96**

City of Kyle Transportation Master Plan

Preliminary Needs Assessment List
All Listed Projects

ID	Name	Improvement	From	To	Construction Cost	Term	Owner	Source	Classification	Right-of-Way	Length (miles)	Follow-UP	Category	Engineering Cost	ROW Cost	Construction Oversight	Contingency	TOTAL COST
R10	Lehman	Widen to 4-lanes	Hill	Bunton	$2,918,522.52	Short Term	Kyle	KTMP	Arterial	80	1.62	Update Plum Creek culvert capacity.	R	$437,778.38	$2,054,639.86	$291,852.25	$855,418.95	**$6,558,211.96**
R11	Windy Hill	Widen to 4-lanes	IH 35	Dacy Ln	$3,898,626.31	Short Term	Kyle	KTMP	Thoroughfare	110	1.77	Subdivisions exist along S. ROW, but straightening of alignment should be possible to the north	R	$584,793.95	$3,087,712.04	$389,862.63	$1,194,149.24	**$9,155,144.16**
R12	Dry Hole	Widen to 4-lanes	Kohler	IH 35	$1,491,954.18	Immediate	Kyle	KTMP	Collector	60	0.99	Duplicates proposed new IH 35 frontage road.	R	$223,793.13	$945,302.17	$149,195.42	$421,536.73	**$3,231,781.62**
R13	Kohlers Crossing	Widen to 4-lanes	FM 2770	FM 1626	$1,916,369.18	Short Term	Kyle	KTMP	Arterial	80	0.87		R	$287,455.38	$1,103,828.65	$191,636.92	$524,893.52	**$4,024,183.64**
R14	Kohlers Crossing	Widen to 4-lanes	FM 1626	Dry Hole	$5,258,000.00	Short Term	Kyle	KTMP	Arterial	80	2.39	UPRR Crossing	R	$788,700.00	$3,028,608.00	$525,800.00	$1,440,166.20	**$11,041,274.20**
R15	Burleson	Widen to 3-lanes	Center	IH 35	$2,630,525.67	Short Term	Kyle	KTMP	Collector	60	1.20		R	$394,578.85	$1,136,387.09	$263,052.57	$663,681.63	**$5,088,225.81**
R16	Old 81	Widen to 3-lanes	West 35 Ftg Rd		$2,160,891.22	Long Term	Kyle	KTMP	Collector	60	1.44	Much of existing observed traffic will be relieved by construction of NLR2	R	$324,133.68	$1,369,140.68	$216,089.12	$610,538.20	**$4,680,792.90**
R17	Goforth	Widen to 4 lanes	Bunton Ck. Rd.	Bunton Ln.	$2,783,685.46	Short Term	Kyle	KTMP	Thoroughfare	110	1.27	Designate as FM 1626	R	$417,552.82	$2,204,678.88	$278,368.55	$852,642.86	**$6,536,928.56**
R18	Bunton	Widen to 4 lanes	Goforth	Dairy Rd.	$5,479,966.20	Long Term	Kyle	KTMP	Thoroughfare	110	2.49		R	$821,994.93	$4,340,133.23	$547,996.62	$1,678,513.65	**$12,868,604.63**
R19	Bebee	Widen to 4 lanes	IH 35		$2,339,568.28	Long Term	Kyle	KTMP	Thoroughfare	110	1.06		R	$350,935.24	$1,852,938.07	$233,956.83	$716,609.76	**$5,494,008.18**
R20	High	Widen to 4 lanes			$4,425,981.25	Long Term	Kyle	KTMP	Thoroughfare	110	2.01		R	$663,897.19	$3,505,377.15	$442,598.13	$1,355,678.06	**$10,393,531.77**
R21	Dacy	Widen to 4 lanes	Bunton	Bebee	$3,096,792.50	Long Term	Kyle	KTMP	Thoroughfare	110	1.41		R	$464,518.88	$2,452,659.66	$309,679.25	$948,547.54	**$7,272,197.83**
R22	Stagecoach	Widen to 4 lanes	FM 150	Center	$3,482,856.34	Long Term	Kyle	KTMP	Thoroughfare	110	1.58		R	$522,428.45	$2,758,422.22	$348,285.63	$1,066,798.90	**$8,178,791.54**
R23	Stagecoach	Widen to 4 lanes	Center	FM 110	$6,079,772.48	Long Term	Kyle	KTMP	Thoroughfare	110	2.76		R	$911,965.87	$4,815,179.80	$607,977.25	$1,862,234.31	**$14,277,129.71**
R24 (a)	Opal Ln	Widen to 4 lanes	Old Stagecoach	new Loop	$1,672,000.00	Long Term	Kyle	KTMP	Arterial	80	0.76		R	$250,800.00	$963,072.00	$167,200.00	$457,960.80	**$3,511,032.80**
R24 (b)	Opal Ln	Widen to 2 lanes	new Loop	IH 35	$1,210,000.00	Long Term	Kyle	KTMP	Collector	60	0.55		R	$181,500.00	$522,720.00	$121,000.00	$305,283.00	**$2,340,503.00**
R25	Opal Ln	Widen to 4 lanes	IH 35	CR 158	$6,547,556.03	Long Term	Kyle	KTMP	Thoroughfare	110	2.98		R	$982,133.40	$5,185,664.38	$654,755.60	$2,005,516.41	**$15,375,625.83**
R26	Roland	Widen to 4 lanes	Old Stagecoach	IH 35	$3,484,283.33	Long Term	Kyle	KTMP	Thoroughfare	110	1.58		R	$522,642.50	$2,759,552.40	$348,428.33	$1,067,235.99	**$8,182,142.55**
R27	Cypress Rd	Widen to 4 lanes	Old Stagecoach	Blanco River	$3,239,664.47	Long Term	Kyle	KTMP	Thoroughfare	110	1.47		R	$485,949.67	$2,565,814.26	$323,966.45	$992,309.23	**$7,607,704.07**
R28		Widen to 4 lanes	Windy Hill	Kelly Smith	$1,373,804.26	Long Term	Kyle	KTMP	Thoroughfare	110	0.62		R	$206,070.64	$1,088,052.97	$137,380.43	$420,796.24	**$3,226,104.53**
R29	East Post Rd	Widen to 2 lanes	NLR 19	R25	$1,199,858.66	Long Term	Kyle	KTMP	Collector	60	0.80		R	$179,978.80	$760,230.45	$119,985.87	$339,008.07	**$2,599,061.85**
R30	Center St	Widen to 4 lanes	Old Stagecoach	FM 150	$1,241,329.60	Long Term	Kyle	KTMP	Thoroughfare	110	0.56		R	$186,199.44	$983,133.04	$124,132.96	$380,219.26	**$2,915,014.30**
R31	Scott	Widen to 4 lanes	Center	Opal	$1,653,108.70	Long Term	Kyle	KTMP	Thoroughfare	110	0.75		R	$247,966.30	$1,309,262.09	$165,310.87	$506,347.19	**$3,881,995.16**
S1	IH 35	Install traffic signal	At Windy Hill		$100,000.00	Immediate	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
S2	IH 35	Install traffic signal	At FM 1626 / NLR2		$100,000.00	Immediate	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
S3	Goforth	Install traffic signal	At Bunton		$100,000.00	Immediate	Kyle	KTMP		0	0.00	High priority due to northern location for connection from Windy Hill to Kohlers across I-35	S	$25,000.00	$0.00	$10,000.00	$20,250.00	**$155,250.00**
S4	Goforth	Install traffic signal	At Lehman		$100,000.00	Immediate	Kyle	KTMP		0	0.00	Improve sight distance in east quadrant.	S	$25,000.00	$0.00	$10,000.00	$20,250.00	**$155,250.00**
S5	IH 35	Install traffic signal	At Center		$100,000.00	Immediate	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
S6	Center	Install traffic signal	at Old 81		$375,000.00	Immediate	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding; includes minor widening	S	$93,750.00	$0.00	$37,500.00	$75,937.50	**$582,187.50**
S7	Center	Install traffic signal	At Burleson		$100,000.00	Immediate	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$10,000.00	$20,250.00	**$155,250.00**
S8	Center	Install traffic signal	At FM 150		$100,000.00	Immediate	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$10,000.00	$20,250.00	**$155,250.00**
S9	Center	Install traffic signal	At Old Stagecoach		$100,000.00	Short Term	Kyle	KTMP		0	0.00		S	$25,000.00	$0.00	$10,000.00	$20,250.00	**$155,250.00**
S10	FM 150 (Hill)	Install traffic signal	At IH 35		$100,000.00	Short Term	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
S11	FM 150 (Hill)	Install traffic signal	At Lehman		$100,000.00	Short Term	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
S12	FM 2770	Install traffic signal	At FM 150		$100,000.00	Short Term	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
S13	FM 1626	Install traffic signal	At Kohlers Crossing		$100,000.00	Short Term	TxDOT	KTMP		0	0.00	Possible TxDOT participation on funding	S	$25,000.00	$0.00	$18,000.00	$21,450.00	**$164,450.00**
S14	Crossing	Install traffic signal	At Dry Hole		$100,000.00	Short Term	Kyle	KTMP		0	0.00		S	$25,000.00	$0.00	$10,000.00	$20,250.00	**$155,250.00**
	UPRR	Increase RR crossing sight distances	at various crossings				UPRR	HCISD		100	0.00	Ask UPRR to clear brush from RR ROW.		$0.00	$0.00	$0.00	$0.00	**$0.00**
	Center St	Improve parking/pedestrian safety	downtown		$500,000.00	Short Term	Kyle	Kyle PD		100	0.00	Reconfigure parking to improve sight distances. Lower traffic speeds. Improve pedestrian safety. This may be an amendment to TxDOT project		$75,000.00	$0.00	$50,000.00	$93,750.00	**$718,750.00**
TOTALS					$171,694,157.59									$25,921,623.64	$198,233,175.15	$19,941,383.44	$62,368,550.97	**$478,158,890.79**



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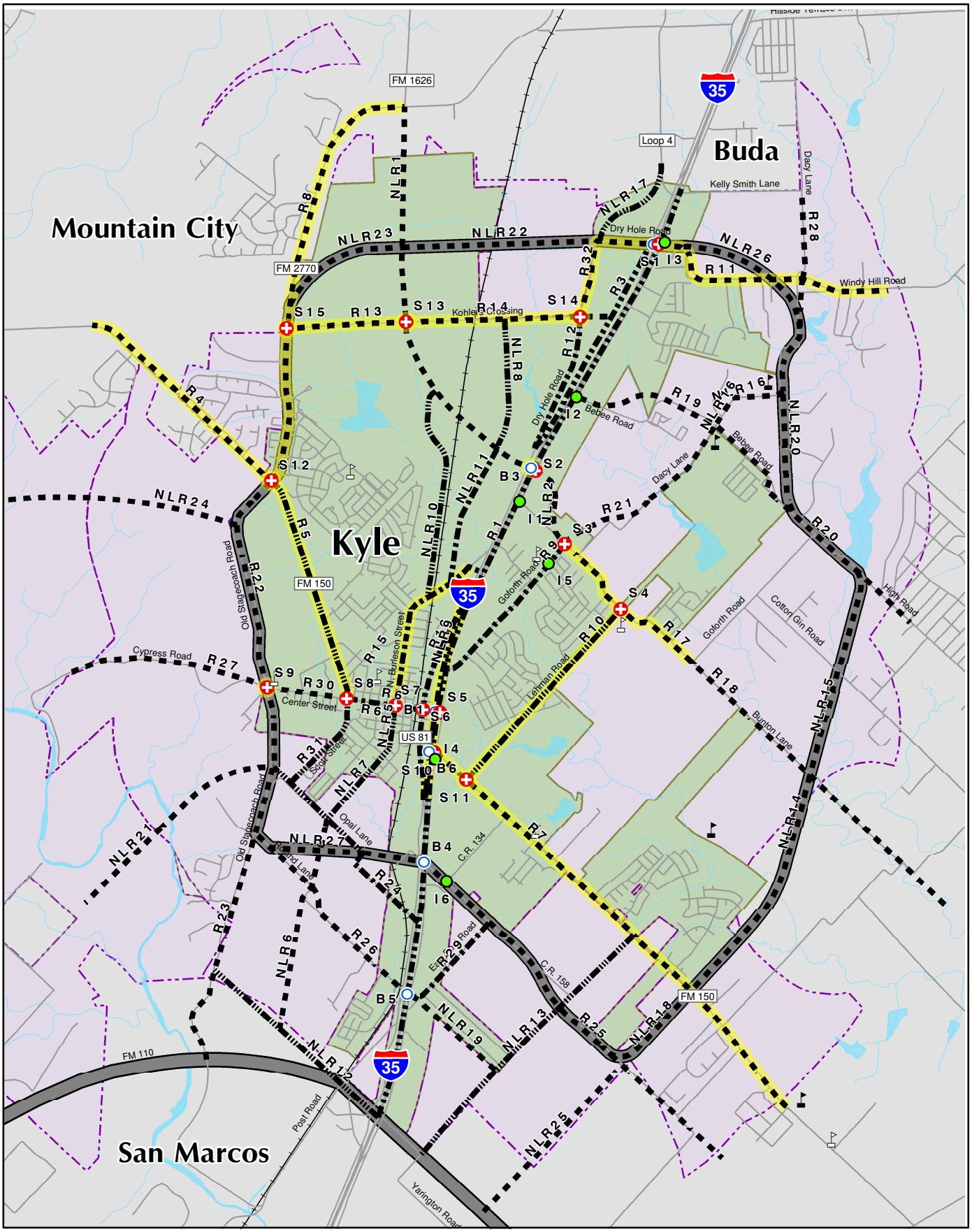
City of Kyle Transportation Master Plan

Immediate Needs

July 06, 2005



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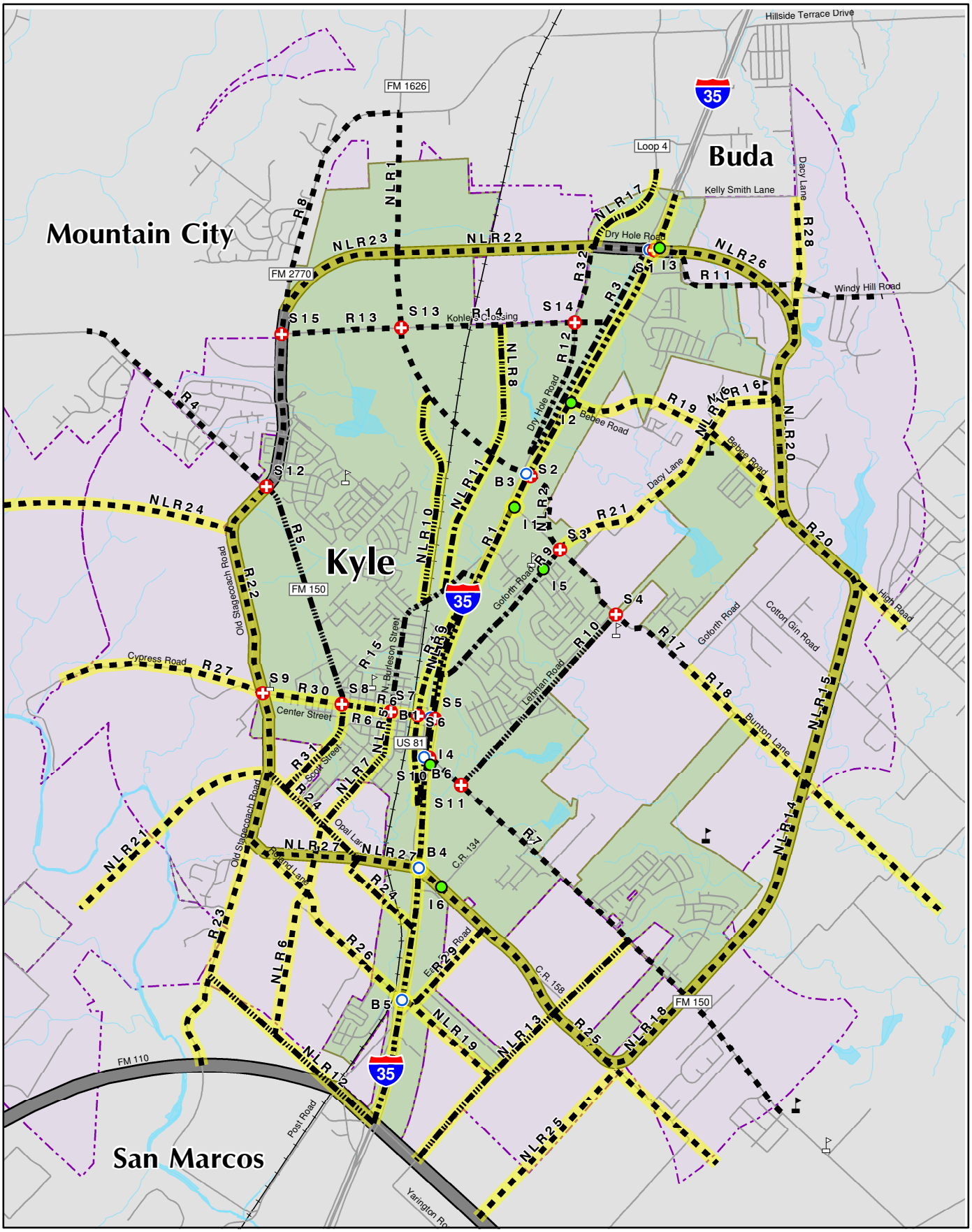
City of Kyle Transportation Master Plan

Short Term Needs

July 06, 2005



Map Key

- Local Roads
- Railroads
- City of Kyle
- ETJ of Kyle
- Arterial
- Collector
- Freeway
- Thoroughfare
- BRIDGE
- SIGNAL
- IMPROVEMENTS
- Long Term
- Loop

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City of Kyle Transportation Master Plan

Long Term Needs

July 06, 2005

7.0 Final Recommendations

7.1 FM 1626 Extension

The TPAC evaluated two strategies to extend FM 1626 eastward, beyond IH 35. One strategy examined was to connect the Bunton Overpass bridge along the Goforth Road alignment to terminate at IH 35 near the Center Street bridge. The merit to this strategy is to apply TIF funds back to the immediate area to improve Goforth and circulate traffic from downtown back to retail areas with utilizing IH 35.

The preferred strategy is to extend FM 1626 southeasterly along Bunton Road and ultimately terminate at SH 21. This route's terminus is more logical because it would provide a back road into Bergstrom International Airport and provide Kyle another link to SH 21. The result should be economic promotion of land development east of Lehman High School.

7.2 Loop

Developing cities have historically identified that a circumferential loop improves traffic circulation and promotes economic development. Just such a loop is included in the KTMP. Being a rather large project, the construction of the loop should be completed in stages over many years as economics warrant its construction. Many portions of the loop follow existing county road corridors such as, Old Stagecoach Road and Opal Lane. However, much of it will eventually be located on new location routes. In either case, ROW preservation at the earliest timeframe will save millions in implementation costs and ensure preferred alignment.

Oftentimes, the impetus to construct the loop may trigger a flurry of activity only to find that travel demand will not justify full construction of 4 lanes. In this case, Kyle can consider the phase construction techniques where half of the thoroughfare's typical section is constructed to supply a 2-lane road. Later, when travel demand warrants, the remaining section may be finished.

Studies of the loop and its location identified a much needed gateway across IH 35 south of Center Street. The most feasible location is on top of the hill where CR 158 intersects the east frontage road. This location takes advantage of natural terrain features that allows for a simple UPRR overpass bridge followed by the loop going back to natural ground, rising up the hill to intersect with IH 35. This arrangement provides for a conventional interchange with IH 35 which would result in tremendous economic growth south of downtown Kyle.

Other south locations studied were either too close to San Marcos' north loop location or would result in a single, non-conventional bridge over both the UPRR and IH 35. Should Kyle's loop be too close (within 1 mile) to San Marcos' planned loop there would not be enough traffic generation to warrant its construction. The location that would utilize a single bridge over the UPRR and IH 35 would have the undesired result of expensive engineering and construction costs coupled with poor access to IH 35. The bridge over the frontage road would also prevent the positive economic development fostered by a conventional interchange.

7.3 Relieve Downtown Congestion

Downtown Kyle's congestion is caused by growth, lack of road network, lack of bridges across IH 35 and a train that blocks Center Street. The options to fix this problem are to identify expansion of existing streets and new corridors that cross IH 35.

Because much of Kyle's downtown charm comes from its historic architecture, widening Center Street is not an option. Therefore, KTMP recommends capacity improvements that encourage through-traffic to skirt around downtown. The most notable alternate route would be the proposed South Loop. Its bridge across IH 35 would provide the route and gateway to the 35 corridor. An additional bridge in downtown at the FM 150 intersection would be very beneficial. This is especially true once frontage roads are converted to one-way operation and people wish access to FM 150.

Another IH 35 improvement to decrease downtown Kyle congestion is the construction of the west frontage road. This link would decrease demand on Old US 81 resulting in improvements at the Center Street intersection.

The KTMP identifies additional north-south access to Center Street at Rebel Drive and Burleson intersections. The plan recommends connecting Scott Street to Center at Rebel Drive (FM 150) intersection resulting in better access to the south loop. The plan also recommends extending Burleson Street southward across Allen, South Loop, Roland Lane and eventually terminating at Yarrington Road.

A system of coordinated traffic signals is also recommended along the Center Street corridor. Beginning at the IH 35 bridge, the signals would be interconnected and timed to promote progression and safety through downtown. Other signal benefits would

be the creation of gaps in the traffic to allow drivers on side streets to turn onto Center and interconnection with the UPRR gates to prevent long queue lines from forming in front of businesses and blocking intersections.

7.4 Rail Recommendations

The KTMP looked at 2 significant UPRR issues; blockage of at-grade rail crossings and the location of future commuter rail station.

There exist three at-grade rail crossings near downtown Kyle. All three have the potential to be blocked at the same time. The result could be dire in an emergency event. The KTMP suggests that a feasibility study be conducted to construct a bridge over UPRR at the Burleson Street crossing. The construction of the south loop would also provide an additional bridge crossing.

The KTMP examined locations for a commuter rail station and sought public opinion on its location. The overwhelming opinion was that it be located at the new FM 1626 bridge overpass at UPRR.

7.5 Future Studies

7.5.1 KTMP Updates

No plan is ever complete. Upon implementation, plan managers will continually identify the need to implement change and adapt the plan accordingly. Not all changes will be significant, nor will they require additional professional services to implement. However, over time, the accumulation of small changes will result in a need to revisit the plan and document their effect. Growth patterns may also change and require plan review to adapt to needs.

Eventually, transportation system performance modeling will need to be conducted. At first, this can be conducted on a microscopic scale, say for traffic signal warranting and timing. Later, the modeling can be performed on a macro scale to help answer questions such as, “how many lanes? when to construct? and where can Kyle get the most for its investment?” Macro scale modeling will eventually be performed by CAMPO for the Mobility 2030 Plan, a regional transportation modeling effort that examines big picture regional issues such as the effects of projects on air quality conformity and cost effectiveness for Federal transit and highway funds. Kyle will need to supply CAMPO with its transportation system updates. This will likely require professional assistance.

7.5.2 Drainage Studies

Many of the immediate transportation improvements have significant creek crossings. One such project is Goforth Road. Its crossing over Plum Creek is with a load rated steel bridge rated for 7000lbs. The load rating barely accommodates the load from a single school bus. The creek crossing is regularly inundated during heavy rains and it detours parents and bus drivers to longer routes to drop children off at Fuentes Elementary School. Aside from the hazards this crossing presents due to its low rating and hydraulic inadequacy, there are significant user costs associated with time lost to drive a detoured route. There is also the loss of the route to emergency service providers.

This particular example is the most challenging, but other crossings share similar problems.

Therefore, this report recommends that Kyle immediately begin studies to identify the magnitude of drainage solutions and the related costs. The need for quick action is to identify accurate implementation estimates before Kyle starts a bond program so that the City may enter a bond obligation with confidence.

7.6 Final Council Recommendations

7.6.1 Council Deliberation and Public Involvement

On March 22, 2005, the project team attended a workshop with City Council, dedicated to discussion of the KTMP. Council was provided copies of all correspondence and written comments received up to that time. As a result of the Council workshop, the comments, suggestions, amendments and clarifications listed below were considered and addressed. After each item is listed the disposition thereof.

<u>Extend Burleson Street southward to proposed South Loop.</u> Agree—this corridor is reflected on the plan as NLR 5 and NLR 7. Possible right-of-way issues may exist in the segment closest to downtown.

<u>Consider Blanco Street as an additional route to IH 35.</u> Although creating an additional parallel route to Center Street (FM 150) would reduce traffic on that road, the project team recommends deferring this change. Traffic signal improvements on Center and the opening of FM 1626 to the north of downtown should help alleviate congestion on IH 35 access routes. Additionally, Blanco does not currently cross the UPRR, and it would be preferable to avoid another at-grade railroad crossing.

Adjust Opal Lane route of proposed South Loop, moving route onto open land behind homes fronting Opal. Agree—The KTMP has been modified to reflect this change. The proposed Loop now extends along Old Stagecoach Road as far south as Roland Lane, where it turns eastward and rejoins the original proposed alignment where it departs Opal Lane west of the UPRR. Opal Lane is now classified as an arterial in the segment between its two intersections with the Loop, and a collector between the Loop and IH 35.

Reconsider classification of Lehman and Goforth Roads, due to flooding issues. The project team acknowledges the flooding issue (see Section 7.5.2 above), but advises that the recommended classification remain, in consideration of the transportation needs in these corridors. In the absence of drainage improvements, the roads will continue to flood no matter what their classification.

Reconsider classification and downgrade FM 150 between proposed West Loop and Center Street (R5) and FM 150 extension from Center Street to Opal Lane via Scott Street (R31). Agree—The KTMP has been modified to downgrade these two corridors from a thoroughfare to an arterial. R31 in particular should retain space for parking and bicycle lanes, as Scott Street acts as a route to city parks and the junior high school.

7.6.2 Other Recommendations

In addition to the items listed in Section 7.6.1 above, which were outcomes of the March Council workshop, further deliberation and discussion amongst City officials have produced the following comments:

Coordinate with the City of San Marcos on transportation projects in the southern portion of Kyle. San Marcos adopted their Transportation Master Plan in 2003. It was noted in Section 7.2 that the location of Kyle's proposed South Loop was determined in part by the necessary separation from San Marcos' proposed Outer Loop Freeway. Corridors linking these two loops as well as mutually beneficial projects could potentially involve cost-sharing or other development agreements between the two cities. In particular, San Marcos' TMP shows several north-south corridors terminating at the northern edge of their ETJ, which is also the southern edge of Kyle's ETJ. The north-south corridors in the KTMP that reach this boundary are R23 and NLR6 west of IH 35, and NLR13 and NLR25 east of IH 35.

Work with TxDOT to assure appropriate and effective implementation and coordination of their plans for IH 35 and other corridors. Several immediate transportation planning issues in Kyle were generated by the planned conversion of IH 35's frontage roads from two-way to one-way, and by the extension of FM 1626 to IH 35. As TxDOT is responsible for these and other major corridors which will serve a large volume of traffic, as well as acting as attractors for future commercial development, it is imperative for the City of Kyle to develop and maintain a good relationship with the state.

Consider studying categorization of "immediate," "short-term," and "long-term" projects to assure consistency with Council's general policy goals. The projects were prioritized based on TPAC's evaluations of their urgency. The criteria included the historic rate of development of surrounding land, current levels of congestion, population and employment growth projected by CAMPO, and coordination with ongoing and planned projects by other entities such as TxDOT. Ongoing maintenance of this list is a task for the TPAC, with input from City Council and citizens. It should be part of future updates to the KTMP, as the rate of residential development and business growth, as well as growth in City revenues will all affect the timing of potential improvements.

Assure that the KTMP properly emphasizes pedestrian safety and accessibility, including sidewalks and street lighting. Section 5.4 has been updated to add discussion of pedestrian issues.

Assure and encourage appropriate placement of railroad overpass in area adjacent to downtown. As implementation of the TMP progresses and potential opportunities avail themselves due to re-development of downtown properties the possibilities of an additional overpass in the downtown area should be constantly examined. Equally important is getting the KTMP included in the CAMPO 2035 Regional Mobility Plan in order for TxDOT and CAMPO to evaluate that type of request for funding assistance and priority.

7.6.3 Final Adoption

It is important that the City proceed with final formal adoption of the KTMP to move forward with effective planning for future transportation needs.

Once the KTMP is formally adopted, the City will distribute copies of it to TxDOT, Hays County, neighboring cities such as San Marcos, Buda, Uhland, Creedmoor, and Niederwald, and the Capitol Area Metropolitan Planning Organization (CAMPO), requesting the incorporation of the KTMP in planning efforts for transportation and development projects in the areas adjacent to Kyle.

The City Manager and his staff recommended in May 2005 that the Mayor and City Council formally adopt the Kyle Transportation Master Plan.

8.0 Conclusion

The KTMP transportation study set out to examine the current transportation system from a regional view and examine the impacts of Kyle's growth on that system. Transportation project identification began with a Preliminary Needs Assessment List. The projects contained on this list were evaluated by the TPAC for consistency with the plan's stated goals. Projects that were found consistent with Kyle's goals were then quantified and prioritized in the TIP. Public meetings collected the community's response, which overall was quite positive, both to the planning process and the outcome. Comments received were used to refine the plan, in terms of improvement locations and timing.

Since this is Kyle's first transportation plan, it is important that the city show a commitment to the TIP and its priorities by tying future policy decisions to the recommendations given herein. LAN recommends that the City select projects from the "immediate needs" group and proceed with design, engineering, and construction. This will keep up the momentum generated by the plan development, and ensure success generated from the immediate response to the plan's recommendations should help convince the public of the plan's usefulness.

Since its founding in 1880, Kyle has grown tremendously, and a great deal more growth is projected well into the 21st. This plan has begun to lay the framework that will ultimately become the transportation backbone that Kyle will need to proceed toward seamless mobility and economic prosperity. Kyle is poised to experience positive growth toward its objectives, and this plan will allow the community to begin moving toward achievement of success.

Appendix A—Media Articles

Kyle convenes transportation board

BY KATE HARRINGTON
Staff Writer

KYLE - Kyle's Transportation Advisory Committee held its first meeting Thursday night to discuss the city's traffic issues and how to best plan ahead for the increased traffic new businesses and residents will bring to Kyle in the next 15 years.

"Transportation is a big issue for the city of Kyle," Kyle City Manager Tom Mattis said. "We've had issues that are more visible, such as water and sewer lines, but transportation is one issue we've been more concerned about. Usually once everyone realizes there's a big problem, it's too late. So we feel like we're in a good position."

"Usually once everyone realizes there's a big problem, it's too late. So we feel like we're in a good position."

--Tom Mattis, Kyle City Manager

Studying the maps that Kyle's consultants, Lockwood, Andrews & Newman (LAN) had drawn up, the need for immediate attention to Kyle's traffic problems, both present and future, seemed obvious.

The maps outline the population density and job growth in Kyle for the years 2007, 2015 and 2030. Although LAN project manager Keith Hall stressed that the maps are not 100 percent accurate at this point, the general trends showed enormous growth around Kyle's city center.

Such growth, Hall and Mattis pointed out, will bring more traffic to an area that is already experiencing high traffic volume around IH-35 and the roads around Kyle's schools. The committee also discussed SH 150, which will handle much more traffic in the next few years as Kyle's downtown grows. Along with the existing traffic is the difficulty of railroad intersections, which tend to back up traffic.

With approval of funding for the extension of FM 1626 just hours behind them (see related story), the committee and LAN representatives started to brainstorm on which traffic areas will need updating and improvement in the near future as more businesses move into Kyle.

Another major challenge for the committee is traffic flow from one section of the city into others. Expanding SH 150 may not be possible without knocking out houses along the road, an option no one is eager to take. But other expansions, such as an extension to FM 2770 or an upgrade of Stagecoach Road, came into the conversation.

One option the committee discussed for alleviating traffic problems is the possibility of a commuter rail. Mattis and LAN have talked with the Texas Department of Transportation (TxDOT) about the possibility of putting a commuter rail station in Kyle. Buda also already has shown interest in having a station.

Although TxDOT and the Capital Area Metro Planning Organization (CAMPO) have the federal money for a new commuter rail, construction would not be immediate.

"I think the commuter rail will be valid, but it will take a lot of time," Hall said.

Part of the appeal of organizing transportation goals in the immediate future is that better traffic infrastructure will draw more development into Kyle. The big box stores that are coming will bring some revenue, but a larger variety of stores will have to fall into place to really bring a significant amount of money into Kyle, committee member Melinda Christ pointed out. In order to attract those businesses, traffic needs to flow smoothly.

"Part of our planning challenge is we have a need for a transportation plan," Mattis said. "But we also don't have an economic development plan or an infrastructure plan ... if we get a good transportation plan, my hope is that we can take from this and have a clear understanding of economic and infrastructure needs, and then water and sewers will fall into place."

The next step for the committee will be to look at updates to LAN's research and plan a date for a public meeting. Mattis, Hall and Eddy Etheredge, project manager at LAN, emphasized the importance of bringing Kyle's citizens into the process of whatever transportation development may occur.

"We need a reality check from other citizens in the community," Hall said.

Kyle residents eyeball roads plan

BY KATE HARRINGTON
Staff Writer

KYLE–Ray Parker, a Kyle landowner, frowned as he studied the aerial map on the table in front of him while surrounded by five others jostling to gain perspective around the map's detailed imagery.

"We're concerned about this spot right here," Parker said, placing his finger on one of the map's many colored lines, meant to indicate an exit ramp at the Bunton Overpass.

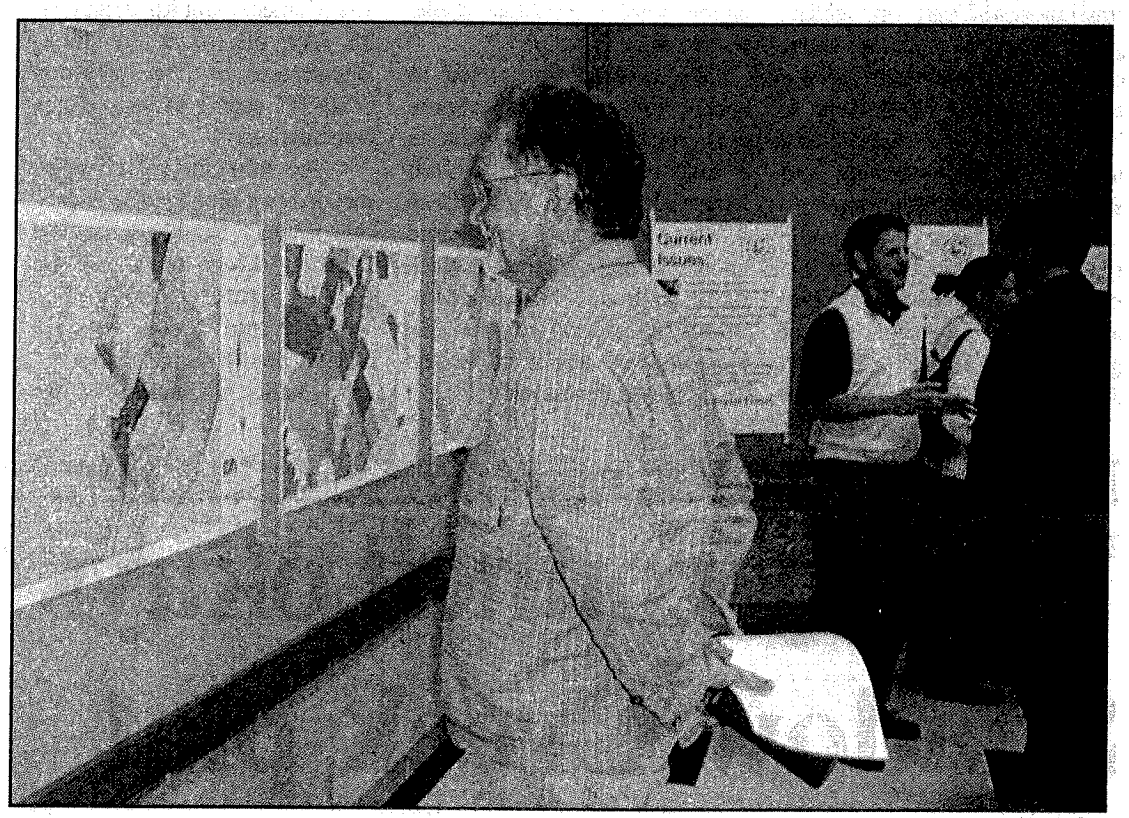
Parker was one of many people who attended Kyle's public transportation meeting on Nov. 15 at the Hays CISD performing arts center (PAC) to give their input on the city's preliminary road plans.

"The city council wanted this to be citizen driven," Eddy Etheredge, a planner with Lockwood, Andrews & Newnam, Inc. (LAN), the engineering company putting together a new road plan for Kyle. "It's all being driven by the community tonight."

Now that Kyle's transportation committee, planners and engineers at LAN and city council members have had several months to identify problem spots and future needs in Kyle's roadways, they have come up with tentative sketches of new roadways, exit ramps and signals that might offer solutions to Kyle's growing traffic flow, said Joe Atwood, a senior planner with LAN. Monday night's meeting was the beginning of the second step, getting community input.

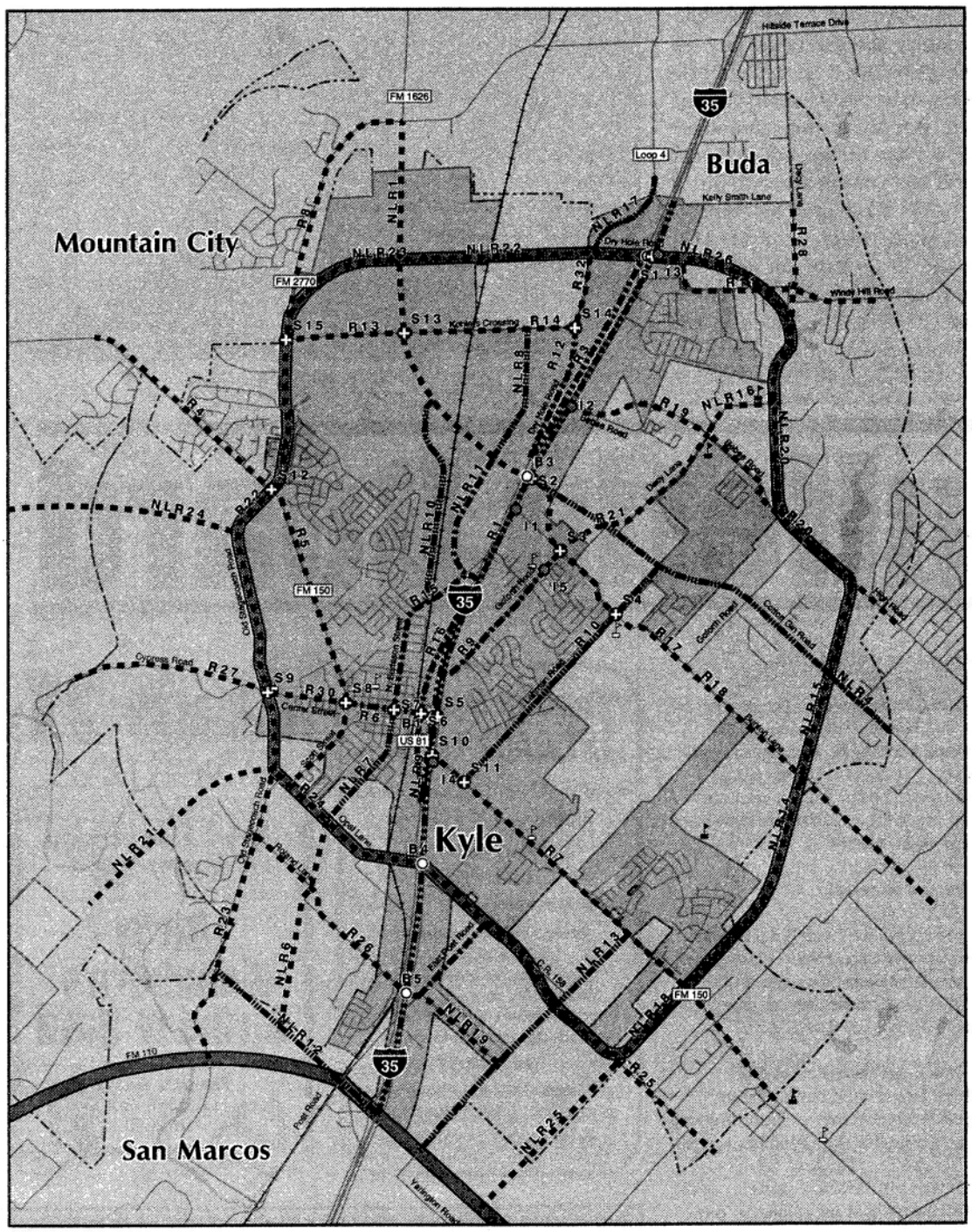
Kyle residents had 30 minutes to look at maps laid out on tables around the room and talk with Planning and Zoning (P&Z) commissioners, council members and engineers.

Kyle road plans, pg. 5



Kyle resident Lee Crane examines maps of Kyle's projected population. The city hosted a forum this week to invite citizen input on transporation issues. (*photo by Kate Harrington*)

Kyle road proposal includes north loop



Kyle commissioned LAN Consultants to work up proposals for future roadways in Kyle. Some hotspots include the Bunton exit at IH-35, the FM 1626 extension, and FM 150 (Center Street). (*Graphic by LAN Consultants*)

Kyle road plans, from pg. 1

Atwood then gave a presentation outlining possibilities for new roadways before the attendees broke into four groups to discuss concerns and ideas.

"You have a lot of problems that need solving," Atwood said. "The current roads are made up of FMs and county roads, but IH-35 is your lifeblood. You need a plan, and without plan, the quality of life will start to decline, as you're already beginning to see."

Atwood outlined LAN's overall goals for a new transportation plan, emphasizing that Kyle's level of transportation performance is suffering right now.

The goals Atwood identified were mobility, transportation performance, incorporation of non-motorized travel, economic development, environmental protection, interagency coordination, financial feasibility and commitment to implementing the final plan on an identified schedule.

"Populations is what's driving your economic growth and causing problems," Atwood said. "If the news isn't bad enough, news in the future will get worse. The population projection map for the year 2030 shows that all the growth is in the north, and some in the east."

Atwood went through definitions and uses of several different types of roadways – thoroughfares, collectors and arterials roads – and how each is typically used. Pointing to an image of the same aerial map that Kyle residents had been studying, Atwood identified a loop that could possibly be constructed to surround Kyle, offering access points to IH-35 and FM 1626, as well as smaller roadways.

The plan is still far from perfect, Atwood emphasized.

"The north loop has a significant problem," Atwood said. "The north loop alignment goes away if you can't make a connection straight through it."

In the center of Kyle, Atwood said that LAN had considered an extension of Cotton Gin Road, but that the extension had the unpleasant side effect of displacing many settled homes.

But the loop would also have many advantages. For one, it would be able to interconnect with thoroughfares to give drivers parallel access to IH-35, Atwood said.

Atwood also mentioned Capital Metro's plan for a future rail stop between Buda and Kyle, and a stop between Kyle and San Marcos.

"We've talked about having a rail stop location at FM 1626, or downtown," Atwood said. "There are pros and cons to both. Right now, the FM 1626 stop makes the most sense, but being downtown means that the economically disadvantaged group has the greatest access, and they are most likely to use it."

The overall estimated cost of everything on the map is $170 million, Atwood said. But the map is still in a temporary state, subject to change after engineers have considered resident's comments.

"You won't pay that all at once," Atwood said. "You break it down. We have immediate needs, which are going to happen or committed to happen right now. That includes FM 1626, and the connection of FM 1626 back to Bunton (Overpass)."

Recurring concerns from Kyle residents present at the meeting included the possibility of connecting FM 150 east to FM 150 west, and the need for an exit ramp south of the Bunton Overpass.

"Traffic will still back up," Parker said of the Texas Department of Transportation's (TxDOT) proposed exit ramp north of the overpass. "The exit ramp will not be near an intersection."

Although residents studied the maps assiduously, sometimes madly gesturing at problem intersections, no one decried the overall plan.

"I've looked at it and I think it's pretty well done," Lee Crane, a Kyle resident said. "A number of people are trying to funnel through a small area, and they're doing something about it."