COMPLETE Street

2035 CIRCULATION ELEMENT

CITY OF MCFARLAND

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TABLE OF CONTENTS

SECTION I
BACKGROUND

The purpose of the McFarland Circulation Element is to assure the provision of a City street system that is correlated to and is sufficient to safely and efficiently convey traffic associated with the City of McFarland Future Land Use Map and pattern of development.

This element must also take into account regional traffic and transportation infrastructure. The element is also meant to address and ensure the integrity of the community's physical, social and economic environment, and should assure that transportation issues are addressed in a manner that limits adverse and enhances positive impacts.

McFarland and Kern County are anticipated to become one of the fastest growing regions in California. As traffic has steadily increased, the City and its fellow members of the Kern Council of Governments, (Kern COG), face the challenge of protecting the small town character of the community while meeting the accessibility needs of the community's residents and visitors. The thoughtful distribution of land uses and the development of a logical hierarchy of local and regional, (or arterial), streets will allow the City to balance infrastructure and quality of life goals.

On an ongoing basis, the City monitors the road system and its operating conditions. Using focused versions of regional transportation models, the City also analyses future traffic impacts due to growth projected for the City and region. This information-based approach, which is an essential part of the Circulation Element, also incorporates regional plans and facilities, and helps assure cost-effective and comprehensive transportation management.

Due to its close interrelatedness, the Circulation Element is an outgrowth of City of McFarland Land Use Element and regional land use planning. The roadway system also affects and is affected by a variety of community and environmental factors. The Circulation Element also has a direct relationship to the City's Housing and Noise Elements. The Recreation and Parks Master Plan is also related to the Circulation Element, as the the Circulation Element is a required element of the City's General Plan. Government Code Section 65302(b) states that a circulation element shall consist of: "… the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, and other local public utilities and facilities, all correlated with the land use element of the plan." Here, housing, noise, and recreation facilities are impacted by the City's transportation and future growth, as examined in the Circulation Element. The types, intensities and mix of land uses in the City will predictably influence the types and volumes of traffic traveling the City's roads now and in the future.

In November, 2006 the City of McFarland accepted a *Traffic Impact Fee Study* from Peters Engineering Group. Based upon the timeliness and high methodology standards utilized by Peters' engineers, the determinations made by this Element are based partially upon the research, recommendations and conclusions of the Peters Study.

Specific implementation programs are provided in this Circulation Element which address the existing traffic conditions in the General Plan study area, and are designed to assure the preservation of roadway capacity in the community.

The need to protect air quality is also associated with growing traffic volumes and infrastructure demand, and requires careful analysis and planning to protect the community from significant levels of locally generated pollutants. Vehicular pollutant emissions will increase with expanding population, miles traveled and less efficient travel conditions. However, the maintenance of adequate flows, the prevention of traffic congestion caused by inadequate and/or failing roadways, enhanced vehicle efficiencies and the implementation of "Complete Streets" will help improve air quality.

Regional issues are becoming more influential on their impact on the local circulation system. Several issues bear notice as they relate to the future Circulation Element. These regional issues will have a more dramatic effect on the development of the local circulation system. These Regional issues are documented through Kern COG's Regional Blueprint document and Kern County's General Plan, as evidenced through the following passage: Kern County serves as a major transportation corridor. Passenger vehicles, motor-homes, and trucks cross Kern County in route to out-of-county and interstate destinations. In addition, rail traffic and pipelines have major routes through Kern County. Interstate 5 is the major north-south freeway through California, Oregon, and the State of Washington. Interstate 5 and Highway 99 connects Kern County to northern and southern California. The County also serves east-west through traffic, on State Route 58 and State Route 46.

Since SR 99 runs through the City of McFarland, regional access to and from McFarland is not an issue. However, the off- and on-ramps to/from SR 99 are inadequate and must be reconstructed. Once the inadequate ramp situation is improved, SR 99 access will play a major factor in the future growth of the City.

STATE REQUIREMENTS

In accordance with California Government Code Section 65302(b), the general plan requires the inclusion of a circulation element and a circulation element shall consist of the general location and extent of existing and proposed major thoroughfares, transportation routes, terminals, any military airports and ports, and other local public utilities and facilities, all correlated with the land use element of the plan.

The CALIFORNIA COMPLETE STREET ACT (AB 1358), states "In order to fulfill the commitment to reduce greenhouse gas emissions, make the most efficient use of urban land and transportation infrastructure, and improve public health by encourage physical activity, transportation planners must find innovative ways to reduce vehicle miles traveled and to shift from short trips in the automobile to biking, walking and use of public transit."

AB 1358, Complete Street Act legislation impacts local general plans by adding the following language to Government Code Section 65302(b)(2)(A). Commencing January 1, 2011, upon any substantive revision of the circulation element, the legislative body shall modify the circulation element to plan for a balanced, multimodal transportation *(Complete Street)* network that meets the needs of all users of streets, roads, and highways for safe and convenient travel in a manner that is suitable to the rural, suburban, or urban context of the general plan.

Section 65302(b)(2)(A), *Complete Street Act*, defines "all users of streets, roads, and highways" as "bicyclists, children, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, and seniors." The circulation element shall contain objectives, policies, principles, plan proposals, and/ or standards for planning the infrastructure to support the circulation of people, goods, energy, water, sewage, storm drainage, and communications.

Circulation elements shall also take into consideration the provision of safe and convenient travel that is suitable to the rural, suburban, or urban context of a local jurisdictions general plan. This could include policies and implementation measures for both retrofitting and developing streets to serve multiple modes and the development of multimodal transportation network design standards based on street types.

Per California Government Code Sections 65103, Local planning agencies should coordinate their circulation element provisions with applicable state and regional transportation plans. These regional agencies include the California Department of Transportation (Cal Trans) and Kern Council Of Government (Kern COG). In addition, federal and state transportation planning must be coordinated with local planning pursuant to Section 134, Title 23 of the U.S. Code and California Government Code Sec 65080(a), respectively.

Recommend that the following areas should be considered:

- Coordination of planning efforts between local agencies and Caltrans districts;
- Preservation of transportation corridors for future multimodal system improvements;
- Development of coordinated transportation system management. (Caltrans is particularly interested in the transportation planning roles of local general plans and plans that include multimodal and transportation system demand strategies to achieve the optimal use of present and proposed infrastructure); and
- Identification of complete streets and multimodal improvements on state highway routes.

Policy Goals:

- Separate pedestrians and bicyclists from vehicle traffic when possible.
- Identify the right for bicyclists to have equal rights to local residential streets which is identified in the California Vehicle Code.
- Upgrade traffic control devices (traffic signals) where needed for a reasonable level of service along with the provision of adequate crossing times and detection for all users, consistent with AB 1581 (Fuller, Statutes of 2007).
- The scheduling and financing of circulation operations maintenance projects.

SECTION II

COMPLETE STREET CIRCULATION ELEMENT ORGANIZATION

While the context of this Circulation Element is focused on addressing concerns around inviting access to local business and removal of barriers to residents, its goals, policies and actions are aimed at taking positive steps toward making the most efficient and sustainable modes of transportation more attractive. It is organized into the nine sections described below.

1. Streets

The Streets section is the heart of the Circulation Element. It synthesizes the Walking, Bicycle, Transit and Automobile subsections and describes how the needs of each mode should be balanced with the others.

2. Walking

Walking is the backbone of the transportation system, since every trip starts with a walk to the bus or car. This section seeks to make walking safe and pleasurable for everyone, on all streets and at all times of day. The Plan pays particular attention to the needs of children, the elderly and disabled. It recognizes that McFarland's streets are part of its open space and recreation systems, and that walking should be a fun, healthful, everyday activity.

3. Bicycle

The most efficient form of urban transportation, bicycling is ideal in San Joaquin Valley gentle terrain and climate. Many trips in McFarland can be made more quickly on bicycle than in transit or by car. The bicycle section proposes an interconnected network of bicycle paths, lanes, routes and share roads so that people of all ages and abilities can ride a bicycle for their daily needs.

4. Transit

Transit is the most effective method for moving large numbers of people throughout the region. The local and regional Bus System has been one of the City's first investments in congestion management. Transit also provides mobility for those who do not have access to a car, whether due to age, income, ability or choice. As the region grows, transit investment must continue and transit must be protected from congestion related delays through smarter traffic signal management and, where necessary, transit-only lanes. The transit section provides guidance to make transit fast, frequent and reliable, and incorporate future connection to 2020 High Speed Rail.

5. Automobile

Promising the freedom to come and go as we please in the safety of a stylish, protected shell, automobiles have been the mode of choice in the San Joaquin Valley for over 60 years. As a means for moving people in urban places, however, automobiles are inefficient, consuming more than ten times as much roadway space per person as other modes. Since we cannot pave our way out of our traffic problems, this section focuses on managing auto traffic and congestion both to allow cars to move around the City at reasonable speeds, to facilitate emergency response needs, and to keep excess auto traffic from damaging the quality of life on our local streets.

6. Multi Modal Level of Service

Is a transition from the traditional Level of Service (LOS), to a Multimodal Level of Service (MMLOS) Assessment of the circulation system's performance, for all modes of travel.

7. Transportation Planning

Transportation planning is a complex and coordinated effort involving multiple agencies. The element identifies several documents and transportation planning agencies that are important to understanding the context of the Circulation Element

8. Transportation Demand Management

This section describes how to manage the overall transportation system for optimal efficiency. It describes tools for reducing the number of vehicle trips generated by new and existing buildings.

9. Parking

This final section describes tools for ensuring that all motorists can easily find a parking space when and where they need one, while at the same time managing the parking system to help achieve the City's congestion management, housing affordability, GHG emission reduction, stormwater management and urban design goals. It does so by recognizing the importance of parking availability to people, by removing the direct and hidden subsidies of parking, and making the true costs of parking apparent to motorists.

STREETS

The Role of Streets

Streets in McFarland play many roles. They provide local property access; accommodate surface drainage; underground sewer, water, storm drains and gas mains; underground and overhead communication and electric; and allow for people to move throughout the City and the region. Streets are for more than moving cars—they also provide networks for moving pedestrians, bicycles, transit and goods.

In addition, they are part of the neighborhoods and shopping districts they cross, and provide open space for gathering and recreation. The following sections provide detailed guidance for the needs of each mode, including walking, bicycling, transit and automobiles. This section synthesizes and provides an integrated set of street typologies (functional classification) that balance the following factors:

Adjacent Land Use Context

Each street should be designed to support the land uses along it, as defined in the Land Use Element of the General Plan. Neighborhood commercial streets, for example, need to attract and accommodate visitors by providing for slow and steady vehicle traffic and available on-street parking in order to support local-serving retail. The busiest areas, such as the Downtown, need to prioritize transit and pedestrians. Local residential streets need to have speeds slow enough to enable motorists to stop for a child chasing a ball.

Priority for the Movement of Each Mode

Some streets must allow transit to progress at speeds that allow it to compete with autos, and balance that with allowing autos to progress well enough to keep through-trips off local streets and avenues. All streets must accommodate pedestrians comfortably, but on some streets an especially high level of pedestrian investment is necessary.

Relationship to Other Streets in the Network

Some streets have to carry more cars because they provide direct connections to freeways.

Others may need to emphasize transit or cycling so that the overall system provides high quality through routes for each mode. As part of future local hazard mitigation planning, there are streets in the network, including ramp connection to the freeway that will have to be identified for emergency response. These may require specific signal technology and clearance requirements.

Land Limitations

Downtown McFarland is mostly built-out. There is little additional land available to widen streets. New facilities for one mode, such as a wider sidewalk, may have to come at the expense of another, such as a travel lane for bicycles or vehicles and transit. Also addition lanes to a street for increase automobile traffic may eliminate bike lanes, decrease sidewalks or decrease front yards of residential homes required for additional right of way.

WALKING

A complete, high-quality pedestrian network is necessary to make all aspects of the transportation system function well. The design of the network should reflect the principles listed below.

- All trips begin and end with a pedestrian trip, whether it's getting from the bus stop to the office or from the store to the parking lot. The success of the transit system is dependent upon high quality walking routes to and from transit stops.
- According to the Centers for Disease Control, there is no single better indicator of public health than rates of walking, this is especially true for children and seniors.
- McFarland's streets comprise roughly one quarter of the City's land area, more than all its parks combined. McFarland sidewalks, paved and unpaved shoulders, undesignated dirt pathways are highly used components of the system.
- Walking is the lowest cost form of transportation, and an enhanced pedestrian network allows residents and visitors to save money by walking. Better walking conditions can improve opportunities for disadvantaged populations by reducing the share of household income that must be spent on high cost auto ownership.
- The perceived safety of walking—particularly among children and the elderly—is an excellent indicator of the overall health of a community.

Old Town of McFarland Main Streets and Downtown

The City's old Town of McFarland main streets serve as important regional connectors and carry a normal volume of auto and bus traffic, while serving the retail and service needs of the community; thus treatments that create a safe and comfortable walking environment for pedestrians are critical. Increased tree canopy, enhanced sidewalks and on-street parking not only improve the physical environment but also act as buffers between pedestrians and traffic. When on-street parking is removed, landscape buffers are especially important. Equally important are well-designed street crossings that ensure that pedestrians can safely cross, with protected pedestrian crossings generally no more than three blocks apart. Downtown McFarland should continue to emphasize walking and transit. Like the neighborhood retail streets, Downtown streets require the highest level of pedestrian investment, with sidewalk widening, as appropriate, on key walking streets. Sidewalks should generally be a minimum of 15 feet wide from face of curb to private property line; additional sidewalk width should be encouraged on private property with setbacks, especially at activity centers. Continuous, pedestrian-scale lighting should be provided.

Neighborhood Commercial Streets

Neighborhood commercial streets are destinations for strolling, designed to allow pedestrians to pass each other comfortably. These areas feature a mix of residential and commercial uses, and future specialty shopping districts they act as both local and regional destinations. The quality of the pedestrian environment is highly important on these streets. Extra attention should be paid to landscaping, pedestrian-scaled lighting, art, façade treatments and other investments to ensure pedestrian comfort and interest. Collaboration with area business groups, such as local Business Improvement Districts or Community Benefit Districts can aid in achieving multiple goals. Where appropriate, space should be provided for outdoor seating

Pedestrian Routes

Paths of travel that provide access to walking destinations such as schools, recreation facilities and commercial areas should be prioritized for improvements. Paths can follow alignments that are independent of the automobile network.

Pedestrian Share Streets

These are locations where pedestrians frequently share the same space with bicyclists. These are streets where it is difficult for people to walk due to limited right-of-way dedicated to pedestrians. Improvement should be strategically pursued at these locations.

Pedestrian Paths

Pedestrian paths are recreational routes are destinations for walking as a fitness or social activity and will include future greenbelts ,parks, parkways and future share bicycle paths connected existing parks and existing residential neighborhoods Together, they will comprise a connected network of walking, jogging, dog walking and exercise paths. All should receive special treatment in terms of way-finding, lighting, walking and bicycling conditions. New paths should be pursued to link recreational facilities.

Multi-family Neighborhoods

In the multi-family neighborhoods, local services and transit require a higher level of sidewalk investment than single family neighborhoods, with a focus on safety and quality. Landscaping, sidewalk maintenance and intersection safety should be prioritized. Sidewalks should comfortably accommodate two people walking side-by-side and provide adequate visibility at alley and street intersections. Pedestrian-scale lighting should provide continuous, soft illumination without dark shadows or glare so pedestrians feel safe walking after dark.

Single Family Neighborhoods

Single family neighborhoods should provide pedestrians with continuous sidewalks, safety and a buffer from moving vehicles. Sidewalks should focus on landscape quality, intersection safety and maintenance.

Shared Streets Neighborhoods

Neighborhoods with shared streets serve as areas where autos travel slowly enough to mix with people—including children and the disabled—on foot and bicycles. Certain streets that characteristically have limited public rights-of-way may not be wide enough to accommodate separate zones for walking, bicycling, driving and parking. Utilities and trees often encroach on the already narrow sidewalk width, creating obstacles for all users. Due to the narrow rights-of-way, it is not possible to accommodate wide sidewalks, street trees, travel lanes or on-street parking. Instead, the City should explore the latest “Living Streets” and “Home Zone” concepts from the Netherlands and the United Kingdom, redesigning these streets to slow motor vehicle traffic to walking speeds so that pedestrians and motorists can safely mix in the same space.

Shared Streets Commercial/Industrial

Industrial areas adjacent to the railroad are comprised of mostly dead-end streets and little noncommercial activity. Where commercial and industrial uses are anticipated to remain in the area, sidewalks should be installed, parking should be located behind buildings and vehicles should travel slow enough to commingle with pedestrians. Driveways and curb cuts should be minimized to reduce disruption of the pedestrian paths.

Investment Focus Area

New investments should emphasize pedestrian connections within, and through, the area, including potential routes through existing and proposed projects. Specific design guidelines will be developed for these districts, with emphasis on sidewalk widths, limitation of driveways and curb cuts, intersection requirements, connectivity, and the creation of smaller-scale blocks.

Future Major Bus Stops

A very high level of future pedestrian investment should be prioritized around major bus stops since the success of transit in any City is largely dependent on pedestrian access.

Key Crossings

Certain locations are known to be difficult to cross and should be thoughtfully evaluated and prioritized for pedestrian crossing improvements.

Key Connections

"Key Connections" should be identified where new or improved sidewalks or paths should be prioritized. Emphasis should be placed on getting across SR 99 Freeway, BNSF Railroad and Future Divided Arterials/Expressways.

Community Facilities

Community facilities located in residential areas are part of the community fabric and should be accessible to the neighborhood and should have superior pedestrian facilities. These community facilities—schools, parks and medical centers—require site-specific improvements.

BICYCLE NETWORK

The Role of Bicycles

The largely flat terrain, short distances and climate of McFarland are ideal for making bicycle mode of travel a healthful, convenient and pleasant way to meet everyday transportation needs for the McFarland Community of all ages and abilities. A limited numbered of people bicycle in McFarland for recreational and utilitarian purposes. An active and passionate cycling community is needed in the future planning, continually reminding decision makers that there is more to be done to improve connections, create a safer environment and increase cycling as an alternative to driving. Through the Sustainable City Plan, the City of McFarland has adopted a set of goals to improve the local economy while also protecting the environment, improving public health and quality of life. Bicycling has a clear role to play in achieving these goals, as increased rates of bicycling can help ease congestion, free up auto parking capacity and reduce air pollution and noise levels. Bicycles are a tried and tested, simple, cheap and zero emission technology. McFarland must strive to achieve numbers like those in Davis, California, where bicycling trips represent up to 14 percent of work trips, and Copenhagen, Denmark, where the number rises to over 35 percent. These high rates are largely due to their investments in safe, interconnected and high-quality bicycle networks. A significant increase in bicycling is necessary for the City of McFarland to be a leading bicycle-friendly City and reach its goals of reducing auto trips, meeting its GHG emission reduction commitments and promoting active living.

Bicycle Lanes

Bicycle lanes are striped areas of the roadway where bicyclists ride parallel to motor vehicle traffic.

Bicycle Paths

Bicycle paths are separated from the roadway, generally running through neighborhoods greenbelts, neighborhood parks and city parks. The planning of future paths should be enhanced for commuting and recreational activities.

Bicycle Routes

Corridors designated as on-street bicycle routes are low-volume, low-speed streets. These streets should have way-finding signs and markings in the travel lane such as Shared- Use Arrows, known as “sharrows,” to indicate to all users that bicyclists are expected to share the travel lanes.

Bicycle Streets

Bicycle Streets are primarily minor collectors, where motor vehicle speeds and volumes are kept low enough for cyclists to comfortably share space with motorists, should be established on streets that are part of the primary network but lack available right-of-way for striped bicycle lanes. All vehicles are permitted on bicycle boulevards, but the streets are designed to slow motor vehicles to bicycle compatible speeds and ensure that all roadway users understand the others’ rights and responsibilities on the road.

Share Streets

Share streets are primarily local streets in residential neighborhood with low traffic volume and speed. There is little need for specific bicycle accommodation. By highlighting these streets on maps and way-finding aids, these streets can provide cyclists with pleasant alternatives to more heavily-traveled parallel corridors.

Auto/Transit Priority Streets

Auto/transit priority streets are highest priority for transit and pedestrians, and right-of-way constraints make dedicated bicycle facilities challenging. Bicyclists have full access to these streets, and where appropriate, street markings such as sharrows may be used in the outside lane to alert motorists that bicyclists will be sharing the same travel lane as other vehicles. Signage should direct cyclists to higher quality parallel routes. Bicycle lanes, paths, routes and shared streets form the main thoroughfares of the future bicycle network connecting all major destinations within and beyond McFarland. They should be the first level of investment for improvements. On all primary bicycle network streets, stop signs should be minimized in the bicyclists' direction of travel, and replaced with treatments to slow all vehicles and allocate right-of-way, such as mini traffic roundabouts. At major intersections, bicyclists should be provided with advanced stop lines ("bike boxes") and bicycle-activated traffic signal detectors.

Key Bicycling Facility: Priority Investment

Investments should be pursued to create dedicated space for cyclists and pedestrians to improve safety and usability, while enhancing the experience for all. Improvements should be prioritized in order to provide a safer and more comfortable bicycling and walking experience.

Future Bicycle Parking

Secure, weather-protected bicycle parking is important in new multi-family housing and all major destinations. Bicycle future valet programs are a valuable service at major destinations and special events. At major regional bus stops, bicycle information centers with secure parking, and amenities such as personal lockers and showers could be provided. Secured storage areas that accommodate all bicycle types should be provided within new residential developments, in all commercial districts and at large employers and schools. The City should encourage bicycle rentals to be available in the commercial districts and major employers to provide bicycle fleets. Bicycle parking should be more convenient than auto parking at all destinations.

Investment Focus Areas

In the development of the Future Transit Village, it is critical that bicycle access, connectivity and amenities are emphasized. In doing so, bicycling can become a primary mode of transportation for trips within the village, the City and the surrounding communities.

Bicycle Key Connection

There are several locations throughout the City where bicycle connections are of high importance but are currently obstructed by topography, physical barriers such as fences and walls, or challenging crossing conditions at major intersections.

Bicycle-Transit Centers

Strategically place facilities with secure bicycle storage and other cyclist amenities such as showers and repair services.

TRANSIT

The Role of Transit

The City of McFarland currently has limited public bus systems. The City has a history of investment in transit, and continued investment is essential to meeting its congestion management, housing affordability and sustainability goals. The City seeks to improve public transit by increasing reliability, decreasing travel times, and ensuring rider safety and comfort along all legs of the journey.

The City also continues to advocate for more investment in and expansion of regional transit.

High-quality public transit can lead to greater social integration and greater options for members of the community who are unable or prefer not to drive. It can provide increased access to quality employment, educational opportunities, social opportunities and the many natural and cultural resources of the McFarland area. Using public transit can save money for riders to spend on housing, education, and other essentials. Public transit vehicles produce fewer GHG emissions than auto trips, making it an important contributor to achieving McFarland's environmental sustainability goals.

As the City continues to enhance public transit, it will be important to coordinate these investments with improvements in street design, establishing clear priority for transit on important routes. Some transit routes are more important than others, and different types of service require different strategies for integration with other modes. Designing streets to be sensitive to the needs of transit will require the City to develop clear, site-specific guidance for the different routes throughout the City.

Regional Transit Stops

Adequate sidewalk width is needed particularly at heavily utilized bus stops. Superior transit amenities, such as high-quality shelters, real-time transit arrival information and benches, should be provided at all future regional stops located on both the west side and east side of SR 99. Bicycle connections and bicycle parking facilities at the regional stops are also important to capitalize on the combined transit-bicycle trip, which expands transit stop accessibility well beyond the traditional half-mile walking radius.

Regional Transit Streets

These streets provide regional connections; serve a growing volume of riders. On these streets, transit will be given first priority. Future signal prioritization will be used to improve the speed and reliability of buses, even at the expense of some loss in performance of automobile level of service. When there is a conflict between transit accommodation and other modes of transportation on regional transit streets, person delay should be minimized regardless of vehicle delay; that is, when calculating delay, a bus with 40 people on board should be weighted 40 times the value given to a car with one person in it. The primary purpose of these streets is to move people rather than vehicles.

Local Transit Streets

Local transit streets create the current backbone of the City's transit system. These streets provide regional connections, serve a growing volume of riders, and support midday frequencies of greater than 20 minutes or have limited service hours. On these streets, transit will be given first priority. All bus stops should have basic route and schedule information. Stops should be located and designed to optimize ridership and rider comfort while minimizing negative impacts on adjacent properties.

Future Bus Stops

All high-ridership stops should be prioritized for investment in high-quality shelters, route and schedule information and real-time bus arrival information. Future potential major bus stops are identified near existing employment sites and future activity centers to direct transit investment and maximize transportation choices for commuters.

AUTOMOBILE NETWORK

The Role of the Automobile

At its best, the automobile provides speed, comfort, privacy and an extraordinary degree of personal mobility. When overused, however, automobiles quickly eliminate all of these advantages, trapping their drivers in congestion along polluted, featureless highways. To fulfill their promise, automobiles are dependent upon the success of the other modes. Paradoxically, it is only by making walking, bicycling and transit more attractive than driving that we can make driving efficient and pleasurable. Even in the most congested corridor, we need only shift 10 percent of motorists to other modes in order for traffic to flow freely.

The automobile network focuses on strategies to keep cars moving on McFarland's major arterials and limit the incursion of regional traffic onto local residential streets. It does so in part by identifying regional traffic bottlenecks and locating those bottlenecks in places that have the least negative impact on McFarland's residential neighborhoods and neighborhood commercial streets. As described previously, these bottleneck intersections are mainly at the freeway ramps, and they act as "meters" that limit the spread of congestion elsewhere at the City. Were the City to expand vehicle capacity at these congested freeway ramp intersections, the congestion would simply move to the next intersection down the street.

The Automobile Network

The automobile network provides guidance for how trips should be distributed across the street system, and how streets should be managed so that they function well according to their purpose. Freeways and Arterials should be operated so that they serve regional trips more time competitively than collectors and neighborhood streets. Neighborhood streets, on the other hand, should be designed for local traffic and for speeds low enough that bicyclists and pedestrians can mix safely with cars.

Freeway

These corridors primarily serve regional auto traffic. Intersections with direct connections to the highway may tolerate a high level of congestion in order to discourage the use of other streets for regional cut-through trips and to maintain acceptable levels of congestion and delay in other areas of the City.

Arterials

These are regional transportation corridors. The arterials protect collectors and neighborhood streets from through traffic by providing superior travel times and service quality for automobiles, while also accommodating biking, walking and transit. Arterials should also ensure that there is minimal delay for transit to make transit trips competitive with automobile trips. Excessive speeding is discouraged. No driveways are permitted where access is available from a side street or alley. Planted medians and regular protected pedestrian crossings should be provided. It should also be noted that arterials and collectors are the primary network for emergency response and must be designed with this in mind.

Major Collectors

These streets connect the City street network to the regional network and provide access for all modes of transportation. These streets may become congested at peak hours when traffic to and from the highway is backed up. Congestion is tolerable on these streets but autos should be accommodated well enough to discourage overflow onto minor collectors or neighborhood streets.

Minor Collectors

The minor collector's auto network consists of intra-city access streets that distribute regional trips from the arterials to major collectors and neighborhood streets. They often serve regional bicycle trips by providing signalized crossings at arterials and major collectors.

Neighborhood Streets/Shared Streets

These streets are intended to carry only vehicles with an origin or destination on that street. Neighborhood traffic calming devices can be implemented to minimize motor vehicle volumes and maintain speeds at the level where autos can safely stop mid-block for pedestrians or bicycles if necessary.

MULTIMODAL LEVEL OF SERVICE

Traditional Level of service

This section of the Circulation Element contains a discussion of the City's transition from traditional Level of Service to a Multimodal Level of Service assessment of the circulation system's performance for all modes of travel.

The traditional vehicle-based Level of Service (LOS) is a quantitative measurement of a driver's delay or congestion experienced on a street or at an intersection. It assigns a letter (A through F) to measure how well a street is functioning. LOS A indicates freely flowing traffic with little to no congestion or delay, while LOS F indicates that the traffic flow is congested and vehicles will experience travel delay. LOS measurements allow the City to identify how well a street segment or intersection is functioning to prioritize funding for roadway improvements, to measure the potential impacts of new development on the City's circulation system, and to identify transportation improvements needed for new development.

Vehicle-based LOS measurements are consistent with traditionally accepted traffic engineering and transportation planning practice. The primary limitation with the LOS approach is that it does not account for the level of service experienced by people using other modes of travel (bicyclists, pedestrians, and transit riders). This element establishes modifications to the existing LOS standards within Downtown and where transit, sidewalks, or bicycle lanes are provided along arterials. Additionally, the element introduces a new method for evaluating performance of the circulation system, a Multimodal Level of Service (MMLOS), which considers all modes of travel: vehicle, transit, bicycle, and pedestrian.

Multimodal Level of Service

Instead of evaluating vehicle movement only, as with the traditional LOS method, the MMLOS method will consider the performance of each mode of travel when assigning a letter (A through F) to a certain intersection or road segment.

Level of service considerations for the four primary modes of travel could include the following:

- **Vehicles.** *Length of delay, number of stops per mile, average speed, vehicle demand, capacity, posted speed limit, number of lanes, signal timing, signal coordination, and interference from other modes.*

- **Transit.** *Frequency and speed of service, passenger load, reliability, accessibility, and bus stop amenities.*

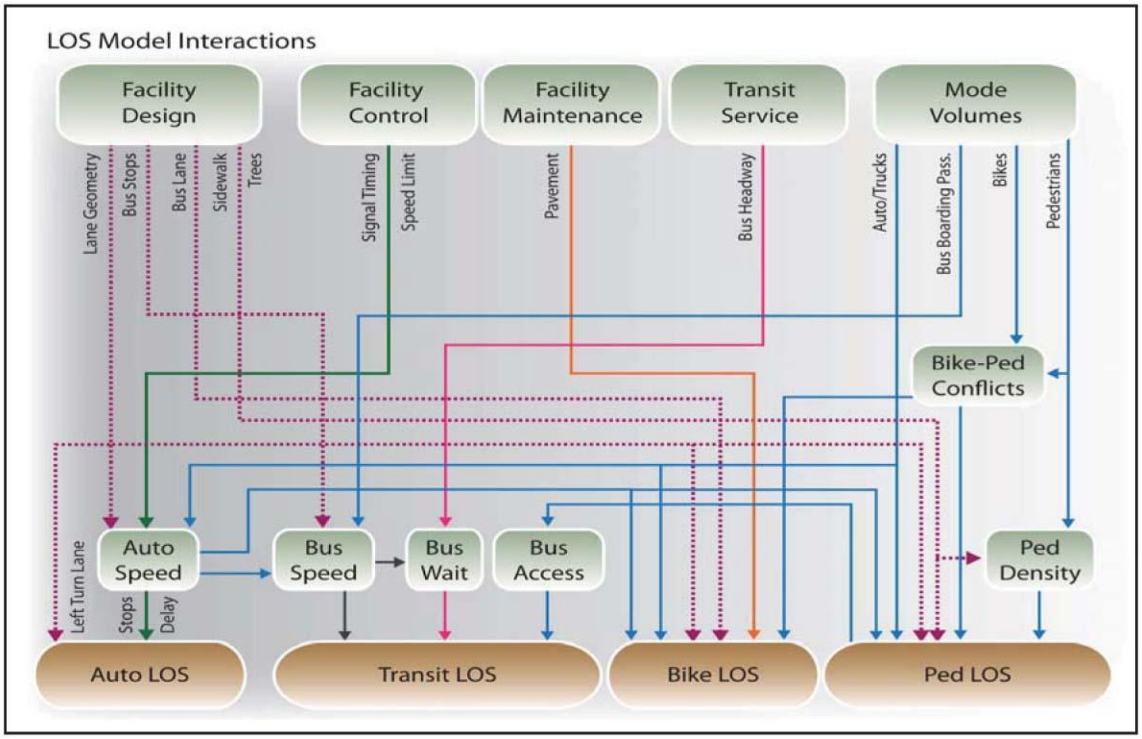
• **Bicycles.** *Quality of bicycle facilities, bicycle traffic volumes, vehicle traffic and speeds, lateral separation from vehicles (barriers, buffers), percent of traffic as trucks, pavement quality, connectivity, and driveway conflicts*.

• **Pedestrians.** *Quality of pedestrian facilities, vehicle traffic and speeds, percent of traffic as trucks, lateral separation between vehicles and pedestrians, crossing difficulty (at intersections, mid-block), and pedestrian density*.

While MMLOS considerations can be identified, an agreed upon system to analyze, measure, and calibrate these multiple factors has yet to be developed. This element establishes the City's commitment to adopt an MMLOS system with standards for measuring traffic impacts in the future and it acknowledges that implementation of that methodology is dependent upon forthcoming industry guidelines. It is anticipated that future editions of the Highway Capacity Manual will include guidelines which will aid in the development and adoption of MMLOS standards in McFarland. Prior to adopting MMLOS standards, interim LOS standards will be used. Subsequent adoption of an MMLOS methodology will replace the more traditional LOS standards.

MMLOS Assessment System

Below is a generalized schematic of an MMLOS assessment system, showing the input variables used to determine individual LOS for the four primary modes of travel. (Please see on the following page).



TRANSPORTATION PLANNING

Local transportation planning is a complex and coordinated effort involving multiple agencies. This section of the element identifies several documents and transportation planning agencies that are important to understanding the context of the Circulation Element.

Highway Capacity manual

Published by the Transportation Research Board of the National Academies, the Highway Capacity Manual contains concepts, guidelines, and methodologies for computing the capacity and quality of service of various facilities including freeways, arterial roads, roundabouts, and intersections, as well as the effects of transit, pedestrians, and bicycles on the performance of these facilities.

State Transportation Planning

The California Department of Transportation (Caltrans) establishes minimum design standards for several types of transportation facilities, including roadways, trails, and bicycle paths. Local governments are generally required to meet or exceed relevant Caltrans standards with locally adopted plans. Caltrans also prepares Transportation Concept Reports (TCR) as a first step in the planning process to determine how a highway will deliver the targeted level of service (LOS) and quality of operations over a 20-year period. Certain segments of State Route (SR) 99 in the Planning Area are forecasted to operate at LOS E; therefore, their TCRs identify plans for widening sections of those routes.

Regional Transportation Planning

The Kern Council of Governments (KCOG) is the agency that manages local and regional public transit as well as prepares and implements regional transportation plans within Kern County. The KCOG 2035 Regional Transportation Plan (RTP) is the long-range regional planning document that identifies and programs roadway improvements throughout Kern County. The RTP does not focus on local transportation needs. There is several RTP improvement projects planned and programmed within the Planning Area that are reflected in the Regional Transportation Improvement Program (RTIP). KCOG is also responsible for implementing Senate Bill 375, which requires development of a Sustainable Community Strategy that links the RTP with state greenhouse gas reduction goals.

The Kern County General Plan also includes transportation plans and policies for roadways, transit, bike, and pedestrian improvements in areas surrounding McFarland**.**

Local Transportation Planning

This element is supported through various implementing documents including local street design and improvement standards in the Municipal Code and the future McFarland Urban Area Bicycle Safe Route to School Plan. The City is also proposing neighborhood plans that include transportation improvements primarily associated with traffic calming measures. The City is committed to working collaboratively with federal, state, and regional agencies and jurisdictions to implement all transportation laws and regulations, and to provide an efficient circulation system for all modes of transportation.

TRANSPORTATION DEMAND MANAGEMENT

THE ROLE OF TRANSPORTATION DEMAND MANAGEMENT (TDM)

Achieving McFarland's goals improving the quality of service of each mode of transportation and future congestion management requires careful management of the entire transportation system. While the previous sections focused upon providing facilities and programs for each mode, this section provides guidance on effective management of the system as a whole. It looks at the transportation system not as an engineer would, but as an economist, putting proper incentives in place to optimize use of scarce transportation resources. This demand management approach to transportation emphasizes:

- Making the most efficient use of transportation capacity by emphasizing modes that use the least space per person: walking, bicycling and transit
- Revealing the actual and hidden costs of transportation so travelers can make informed decisions and reduce their impacts on the environment and future congestion.
- Improving alternative transportation choices so that the community of McFarland need not use their cars for every trip they make
- Making the most cost-effective investments, considering the triple bottom line of economy, environment, and equity—and recognizing that sometimes it is cheaper to pay people not to drive than it is to build the road and parking infrastructure necessary to accommodate their vehicles
- Relying more on pricing, as opposed to congestion, for allocating street and parking resources
- Investing revenues in higher quality and more affordable access options.

THE TRANSPORTATION DEMAND MANAGEMENT LAND USE MAP

This section begins with an acknowledgment that McFarland's various land use, shopping centers, office, multi-family and single-family neighborhoods each have different travel characteristics—places with higher-frequency transit and abundant local services generate fewer vehicle trips than single-use districts with limited transit. Accordingly, the Demand Management Districts Land use map divides the City into key areas, each of which has different mode split targets and demand management strategies.

DEMAND MANAGEMENT LAND USE

Mixed Used land Use Goal

The Future mixed land use of combined retail, office and residential will produce the lowest vehicle trip rates in the city, but offer potential for further reducing their vehicle trips. These areas have the highest goal for vehicle trip reduction.

Multi-Family Land Use Goal

The multifamily residential, employment centers and elementary and middle schools all offer significant potential for further vehicle trip reduction, although not quite as much as the Downtown. These have a higher goal for demand management.

Commercial Land Use Goals

The remaining commercial districts in the City will have goals tailored to their specific characteristics.

Transportation Demand Management Strategies

The best TDM tools vary by land use and location, and the best TDM program requirements allow ample program flexibility in achieving clear, quantifiable goals. The following provides a short list of some of the most effective TDM tools for three sample land use types.

OFFICE, COMMERCIAL AND OTHER EMPLOYMENT USES

Location

Clustering employment near regional transit, in walkable neighborhoods and near local serving retail can cut peak period vehicle trip generation rates by half.

Transportation Management Organizations

The Land Use and Circulation Elements emphasizes the formation of Transportation Management Organizations (TMO) or other entities that can help manage parking and encourage walking, bicycling, transit and carpooling at a city-wide level. The City may leverage some of its transportation funding—including fees— through these organizations for improvements that benefit the larger area. This could result in increased bus service, new pedestrian improvements, or bicycle facilities.

Parking Pricing

The true cost of parking should be made visible to employees either through direct, daily parking charges or parking cash-out programs. In parking cash-out programs, employees who drive may park for free, but employees who choose not to drive are given the cash value of the parking they do not use. In this way, transportation as a whole is treated as an employee benefit, and all employees receive the same benefit, regardless of how they get to work. Parking cash-out programs should be structured to reward employees who leave their car at home at least one day a week. Together, parking pricing and location have a greater impact on employee travel behavior than all other TDM programs combined—reducing trips by up to 16 percent—in part because they increase the effectiveness of all the other programs. In retail districts, setting the price of parking so that customers can always find a space can reduce traffic by as much as 30 percent by eliminating circling around blocks searching for a parking space. As detailed in the Parking section, it is essential that paid employee parking does not result in spillover parking into residential neighborhoods; tools for eliminating spillover are addressed in the next section.

Transit Passes

When an employer purchases free transit passes for all employees—or when an employee ID card is also valid as a regional transit pass—the transit ridership impact is greater than merely providing free or discount passes to regular transit users. Pass programs available to all employees encourage those who have never taken transit to try it, and this way, they may become regular riders. To be most effective, transit passes should cover both local and regional buses. Such transit pass programs could reduce employee commute trips by 8.5 percent or more.

Tailored Transit

Many large employers provide dedicated shuttles to regional transit hubs and places where high concentrations of their employees live. Many of these shuttles offer a high-quality work environment, In McFarland the TMO and Kern COG could organize specialized employee shuttles

Carpool and Vanpool Programs

Given the region's sprawling land use pattern, carpooling and vanpooling will remain a popular choice for long distance commuters and along corridors that transit does not serve well. The TMO and Kern COG can assist organize carpools and vanpools, and provide subsidies.

Personalized Travel Assistance

Given the confusing array of options many employees drive to work merely because the alternatives are too difficult to understand. By providing direct, tailored assistance to employees, all TDM programs can be more effective.

Residential

Location and Density

As with commercial development, location has the largest influence on residential vehicle trip generation, with homes near transit, in walkable neighborhoods and near local services generating far fewer trips than homes in isolated locations—as much as 50 percent fewer during peak periods. Density also matters, with vehicle trip generation rates declining sharply as density increases, particularly in walkable neighborhoods

Local Services

Putting all the needs of daily life within McFarland's neighborhood commercial districts is key to reducing traffic caused by residents. Only 20 percent of trips from a typical home are for work—the other 80 percent are for errands, shopping, school, recreation and other purposes. Maintaining a rich array of services within walking distance has a large impact on travel behavior.

Parking Management

Separating the cost of parking from the cost of housing allows residents to decide how much parking they will need and helps to create affordable housing options. Separating these costs also influences travel behavior, largely because it encourages families with fewer cars to move to the City of McFarland by offering housing discounted by the cost of parking. Better management of residential on-street parking so that residents can always find a space on their block may also reduce traffic significantly by eliminating the need to circle around the block for a space.

Transit Passes

Universal transit passes could be provided to residential developments or neighborhoods through resident associations or assessments. Examples of places this has been implemented include Santa Clara, California and Boulder, Colorado.

SCHOOLS

Safe Routes to School (SR2S) Programs

By combining physical improvements to increase the safety of walking and bicycling, along with classroom training, McFarland can cut vehicle trips by as much as half at its elementary, middle and high schools.

SR2S Enforcement Strategies

The goal of Safe Routes to School enforcement strategies is to ensure that all drivers, bicyclists and pedestrians are obeying traffic laws and sharing the road safely. This can be done by initiating or expanding crossing guard programs, student safety patrols or parent safety patrols; partnering with local law enforcement to ensure traffic laws are obeyed in the vicinity of schools (e.g. enforcement of speed limits, drivers yielding to pedestrians at crossings); and ensuring that students wear helmets when they bicycle or use skateboards, skates, or non-motorized scooters in accordance with law.

Ultimately, the main goal of the Safe Routes to School enforcement strategies is to deter unsafe behavior and deter unsafe behaviors of drivers, pedestrians, and bicyclists and to encourage all road users to obey traffic laws and share the road safely. But enforcement used alone will not likely have a long-term effect. The City must utilize a combination of enforcement, engineering, education, and encouragement strategies to address the specific needs of the schools and achieve long-term goals.

Included below is a list of recommended enforcement strategies for the City of McFarland:

Use of Enforcement Officer
Traffic Enforcement Specialists
Community Action Officers
School Resource Officers
Use of Crossing Guards
Use of Law Enforcement Officers
Patrolling during school starting/ending
Re-paint crosswalk areas
Identify areas for crosswalks
Improve the quality of intersection safety along key bicycle and pedestrian school routes by installing low cost signs and pavement marking

Transit Passes

Particularly at Kern Community College (City of Delano) and Bakersfield colleges listed in below table, turning student ID cards into universal transit passes could significantly reduce vehicle trips, (even more so than at employment centers).

Parking Management

The City could work with the McFarland Unified School District to incorporate parking as a tool for traffic management. Additionally, money spent subsidizing parking is money that could otherwise go for educational purposes. People who use parking could pay for the land, construction, maintenance and other operational costs of providing parking.

Colleges in Kern County

College Name/Link	Campus Location	Student Count
Bakersfield College	Bakersfield	17,405
California College Of Vocational Careers	Bakersfield	32
California State University-Bakersfield	Bakersfield	7,700
Cerro Coso Community College	Ridgecrest	4,577
Lyles Bakersfield College Of Beauty	Bakersfield	206
Maric College-Bakersfield	Bakersfield	567
San Joaquin Valley College-Bakersfield	Bakersfield	602
Santa Barbara Business College	Bakersfield	482
University Of Phoenix-Central Valley Campus	Bakersfield	2,000

PARKING

The Role of Parking

Sufficient automobile parking is necessary for the success of most of McFarland's businesses, and for the quality of life of its car-owning residents. Indeed, lack of available commercial parking could be one of the strongest complaints voiced in the land use and circulation elements process by neighborhood residents and retail business owners. But how much parking is sufficient? Too much parking may be just as bad as too little. This section examines how the City can quantify the "right" amount of parking, manage that parking optimally, and design it for function and beauty—all to achieve McFarland's larger goals.

Parking Issues

Parking issues vary significantly across the City. Residential neighborhoods face the following future key issues:

- Increased auto ownership. As McFarland's demographics have changed, so have its rates of auto ownership.
- Parking used for storage. In some cases, residents use their off-street parking space for storage, increasing the demand for street parking.
- Employees, visitors and shoppers may park in neighborhoods. Commercial districts face other issues:
- Low parking supply in some areas. Older residential were constructed with a single car garage.
- Fragmented supply. Many off-street parking lots are reserved for particular users and sit empty at other times of day, an inefficient use of a valuable resource.
- Employees park at the front door. In some cases, employees take the most prized front-door parking spaces, forcing shoppers and visitors to park farther away.
- Shoppers circle for parking. Where parking availability is tight, and where available spaces are hidden in garages or at the back of buildings, shoppers may circle the block repeatedly, contributing to traffic congestion.

Parking Economics

Parking is expensive. Building a new parking structure costs about $35,000 per space in 2011 dollars—and over $45,000 underground. A surface space may be less expensive, depending cost of land in McFarland. While it is important to have sufficient parking, building too much parking is wasteful. At these prices, it is essential that all of McFarland's parking spaces be managed as a precious resource. For motorists, the critical issue is parking availability, not parking supply. Citywide, there are always plenty of empty spaces—just not where motorists want them or can find them. The goals and policies of this section are largely structured to match parking supply and parking demand through better management of the existing parking system. Economic theory teaches that there are limited tools the City can use to balance parking supply and demand:

- Substitution increases the attractiveness of alternatives to driving, including all the tools covered in the TDM section.
- Market segmentation allows parking to be restricted to a certain set of users, such as the City's existing residential parking permit districts.

- “First-come-first-served” requires that motorists circle around to find a space or wait for another motorist to leave.
- Price sets a rate that may vary by time of day and location to encourage motorists to shift from high-demand facilities to empty lots. Pricing is the most commonly used mechanism to balance supply and demand for most goods and services, including housing, food, and clothing because it tends to be more efficient and fair than the other tools. As the price of parking declines, its demand increases—and as price increases, demand falls. If the price is set too low, parking becomes scarce, and businesses will suffer and motorists will be annoyed. If the price is set too high, parking spaces will sit empty, and shoppers and visitors will go elsewhere. The trick is to set the price of parking just right, so that everyone can always find a space but no spaces are wasted. At this optimal price, commerce and residential quality of life are both maximized.

The Land Use and Circulation elements recommend using all four tools, reducing queuing and emphasizing price. This conclusion is supported by a 2008 Rand Corporation study that found properly priced parking to be one of the most immediate and effective tools local governments can use to reduce traffic congestion.

Who Pays for Parking?

Most motorists who park in McFarland do not pay for the full costs of providing that parking, including the value of the land, the construction and maintenance costs, and ancillary expenses like enforcement, and lighting and security. As a result, these motorists receive a direct or indirect subsidy to help pay for their parking. That is, some of the costs of parking are hidden in the costs of other goods and services, or paid for through public funds. From an economic perspective, parking subsidies may be a valuable tool for promoting business in a competitive region where most motorists park free. From a social equity perspective, discounted parking at home and work can be just as important as affordable housing and decent wages for low income, automobile-dependent households. From a congestion-management perspective, however, subsidizing parking is the same as paying people to drive, the economic equivalent of giving away free gasoline. In areas where local street capacity is overburdened, “solving” a parking problem by providing more spaces will put more pressure on the streets that provide access to the parking. Parking supply and management also raise complex tensions related to McFarland’s housing affordability goals. Each off-street parking space, along with its share of necessary aisles and ramps, consumes about the same amount of building space as a studio apartment. Each parking space added to a typical multi-family residential unit increases the price of that unit by about 20 percent and decreases the number of units that can be built by roughly the same amount. Moreover, households that can give up ownership of one vehicle can qualify for an additional

$100,000 to $150,000 in mortgage in 2011 dollars, or save $650 a month. McFarland's parking policies must acknowledge the tensions they pose in implementing all of its economic vitality, quality of life, social equity and ecological sustainability goals.

Successful Parking Strategies

To address its parking issues, McFarland should pursue a coordinated parking management strategy: In residential neighborhoods, the City should explore all of the following as part of its future integrated approach:

- Constrain residential permits. Residential parking permits should be more than just "hunting licenses." Instead, permit distribution should be limited to ensure that some spaces are always available. Before expanding residential parking supply, the City should pursue options for constraining permits so that increases in supply will result in increases in availability. Similarly, the City should create incentives for residents to park in their own garages rather than use them for storage
- Provide residents access to available commercial spaces. Where commercial properties have surplus parking—particularly at night—the City should help create mechanisms to allow residents to lease these available spaces. This will likely mean having a third party manage the spaces so that commercial property owners do not have to accept added liability or management costs.
- Ensure new development improves parking availability. New developments may be excluded from participating in existing residential permit zones, and they may be required to rent their shared parking spaces to nearby residents just as they do to building tenants.
- Reduce or eliminate free parking in residential permit zones. To limit spillover from surrounding commercial districts, free time limited parking may be reduced or eliminated. To maintain access for guests and residential vendors, the City may expand availability of guest permits or provide pay-and-display machines in neighborhoods. Such changes or new programs require the support of the residents of the affected area.
- Create residential parking benefit districts. Through parking permits or space by space, some neighborhoods may want the option of selling their surplus daytime parking supply to commuters, provided that net revenues are invested in the parking district for improvements like traffic calming, transit amenities, bicycle routes, street trees or other local priorities. Such programs would require the support of affected residents.
- Create centralized neighborhood valet parking. In areas of great parking scarcity, valet parking for residents may be as successful as it is in commercial districts.

- Create an online residential parking rental program. The City or neighborhood organizations may work to create a market for available parking through an online information and auction site.
- Bring car-sharing to McFarland. In other urban markets in the United States, every car share vehicle provided has eliminated up to 25 private vehicles, with residents selling their second or only car, or avoiding the purchase of a car altogether.
- Adjust parking price to ensure availability. The City should establish a target that 15 percent of spaces in every lot and future parking garages, and along every block face, be available at all times. It should then adjust the price of parking and the hours of enforcement to meet this target, varying by time of day, season and location.
- Expand payment options. It should be as easy for a customer to pay for parking as it is to buy goods from any retailer, and the City should ensure that credit cards, debit cards and other convenient forms of payment may be used for all parking spaces.
- Expand real-time parking information. To reduce circling for parking, motorists should be able to know the best route to the closest available parking, with real-time messaging signs from the freeway off-ramps to most lots and garages.
- Expand car-sharing. If employees can easily rent a car by the hour during the day, they may not need to bring a car with them to work in order to run errands or go out for lunch.
- Implement employee TDM. All of the programs listed in the TDM section can reduce parking demand and make more spaces available for customers.
- Manage employee parking. Employees should not be encouraged to park in prime customer spaces or in residential neighborhoods. Instead, each commercial area should have a tailored employee parking strategy, taking advantage of less-utilized facilities.
- Future valet programs. Centralized valet programs allow shoppers, visitors and employees to drop their car off at any valet and pick it up elsewhere.

SECTION III
FUTURE CIRCULATION PLAN

Planning Area

The Study Area / Planning Area is the same as the current Sphere Of Influence (SOI) and is approximately twelve (12) sections or 7,680 acres. The area is encompassing by Peterson Road on the north side to Whisler road on the south side, Stradley Avenue on the west side to Driver Road on the east side. (Refer to Figure III-1)

2035 Circulation Diagram

RMA has prepared a comprehensive 2035 Circulation diagram based on the following

Twelve (12) Planning and Circulation items:

- Draft Land use Diagram / Draft Land use Element
- Draft State Route 99-McFarland Interchange Feasibility Study
- RMA Limited Traffic Analysis
- Peters Engineering Group Traffic Analysis
- Existing Traffic Counts
- Restraint Streets
- Existing Street Right of Way Width and Curb Width (travel way)
- Existing Street Sections Standards
- Proposed Easterly and westerly Major Travel Corridors
- Proposed Northerly and Southerly Major Travel Corridors
- Proposed Street Classification
- Proposed One Way Streets

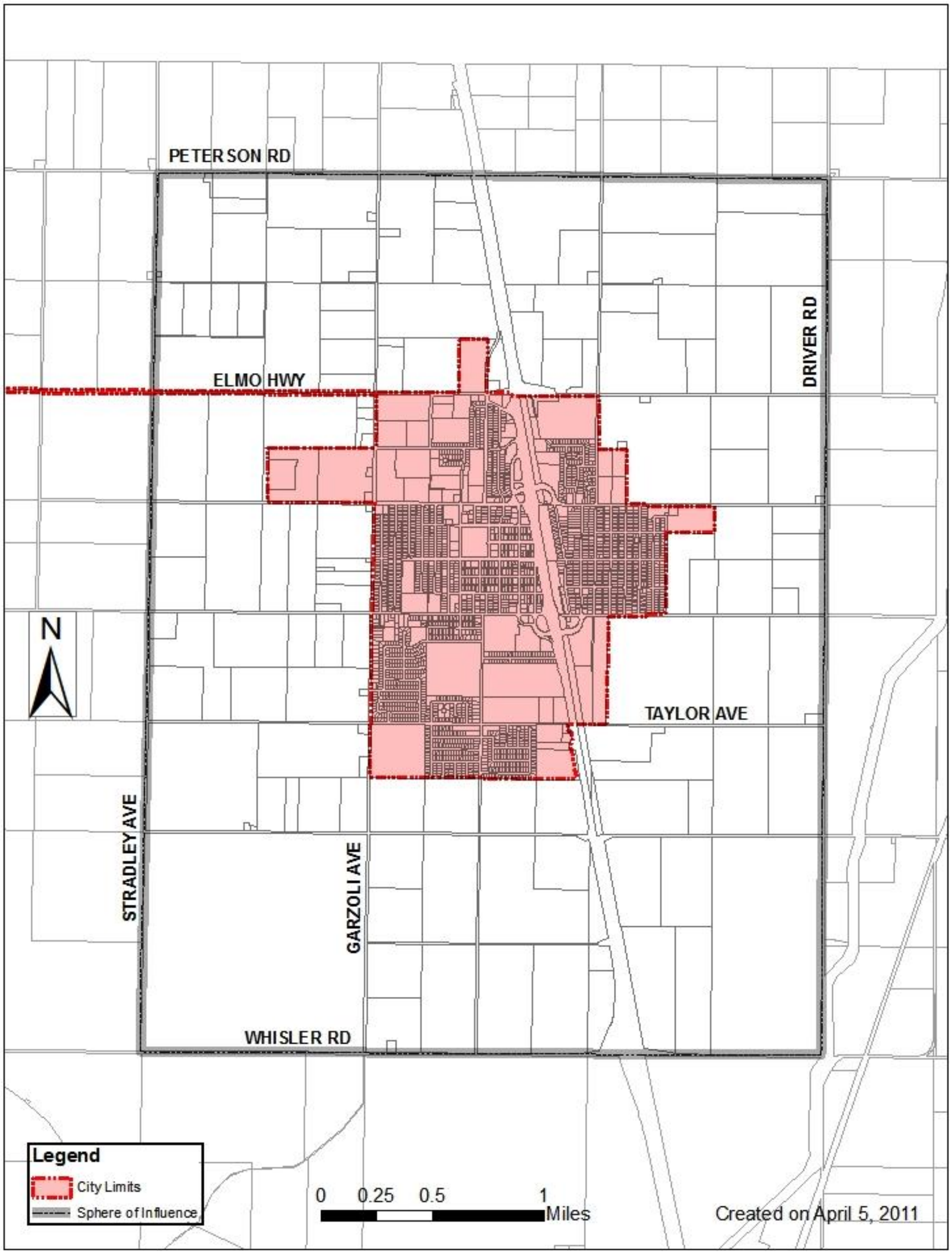


Figure III-1 Planning Area/Sphere of Influence Map

The proposed 2035 Circulation Diagram will be substantially different than the 2011 circulation diagram (Refer to Figure III-4) and the 1991 circulation diagram (Refer to Figure III-5) and the recommendation per the City adopted 2006 Traffic Impact Fee Study,
(Peters Engineering Group) to widening certain roadways to four travel lanes (arterial street).

The first substantial change is the development of a new updated draft Land Use Diagram/Land Use Element in 2011 by the McFarland Planning Department and a city planning consultant; the second substantial change was the preparation of a draft State Route 99-McFarland Interchange Feasibility Study in 2011 by the Kern County Council of Governments (Kern COG).

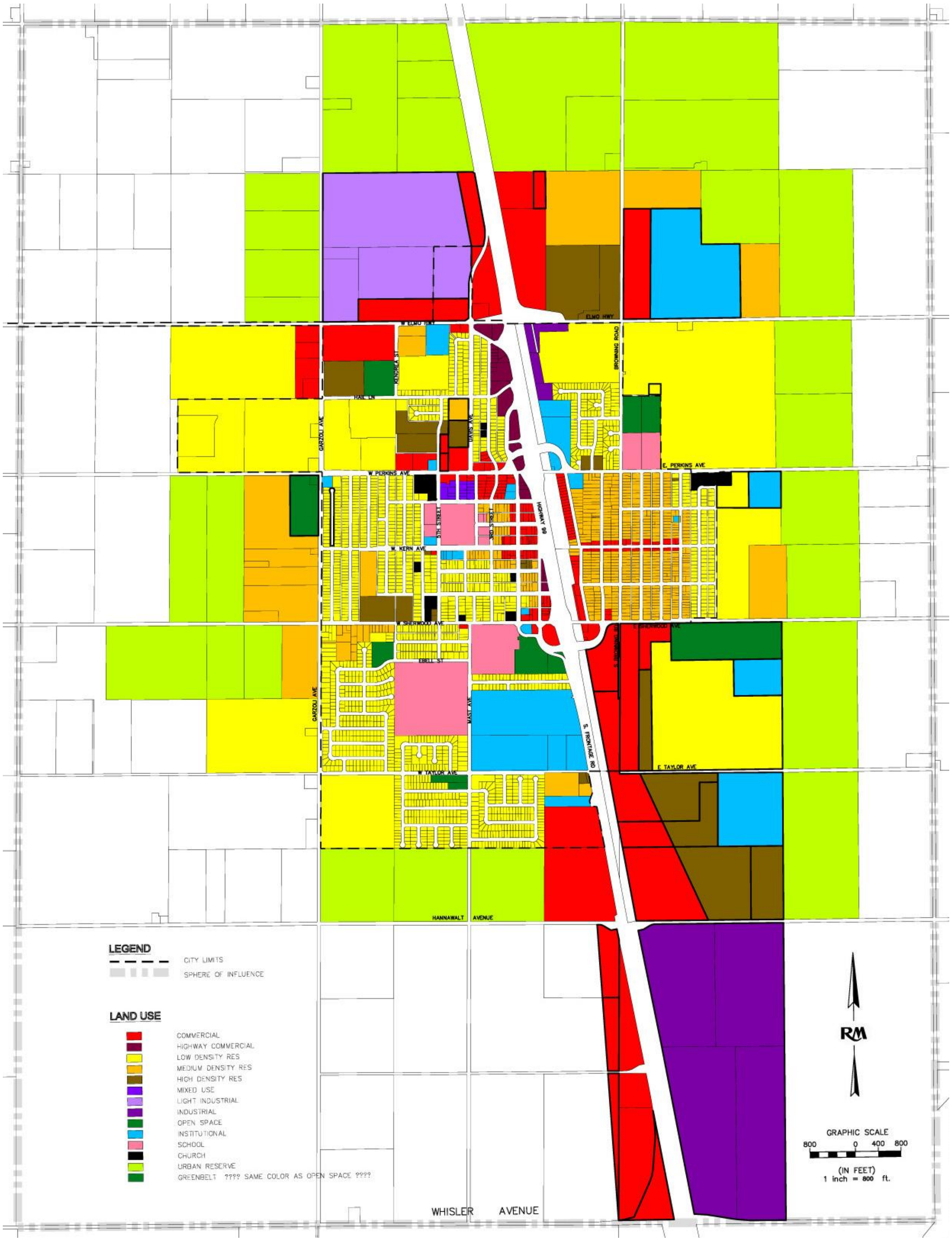


Figure III-2 - RMA 2035 Land Use Diagram

State Route 99-McFarland Interchange Feasibility Study proposed to completely alter the configurations of the existing overcrossing bridge crossings and ramp connections to SR 99 for Sherwood Avenue, Perkins Avenue and Elmo Hwy. The study also include the future addition of one new interchange at Hanawalt Road alignment and the reconstructions of the Whisler Road interchange with two additional lanes and a reconfiguration of the SR 99 southbound off ramp and on ramp.

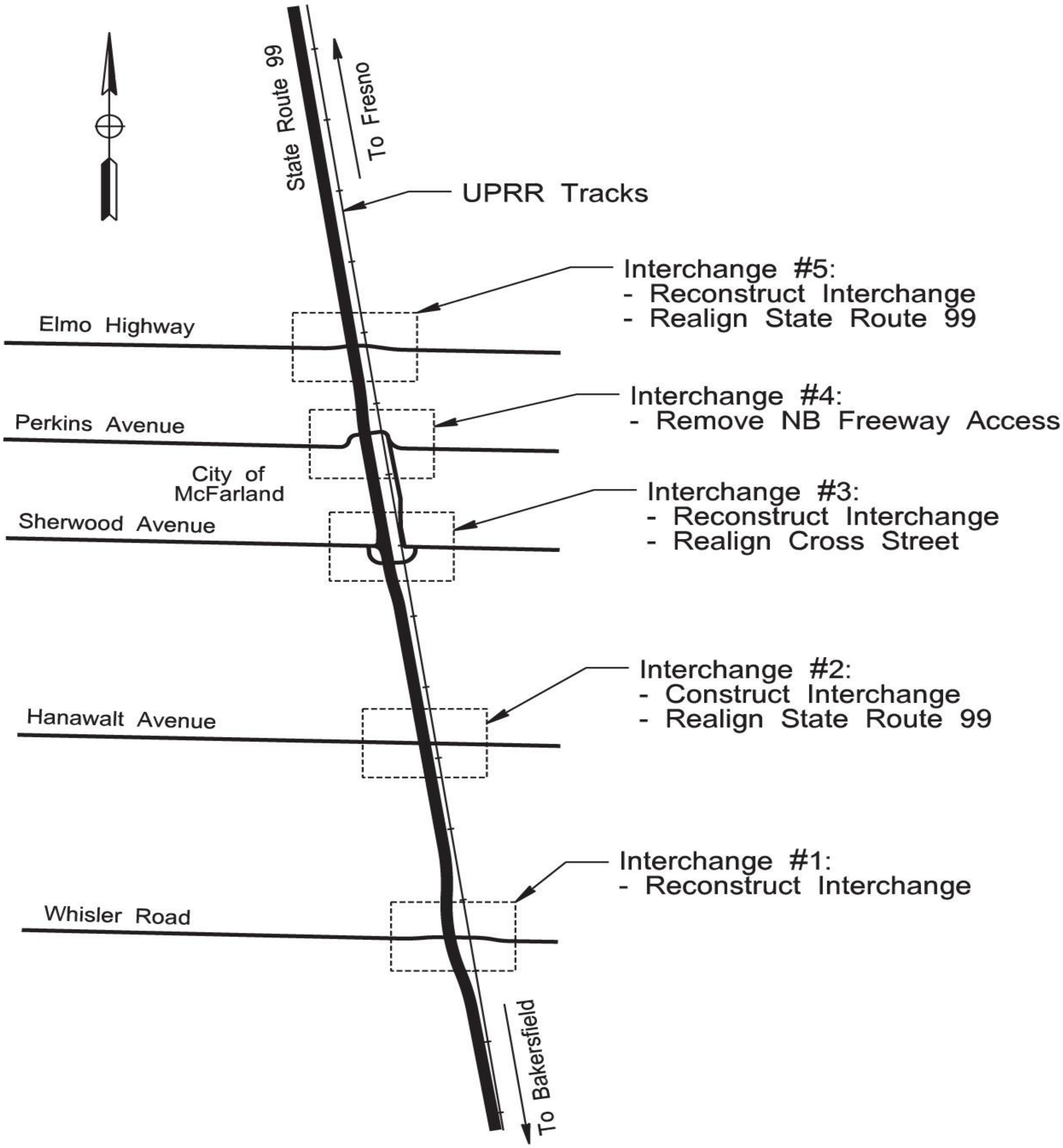


Figure III-3 - McFarland – SR 99 Interchanges

Recognize that street rights of way (existing) of the older build out residential and commercial neighborhoods were constructed based on planning tools, development standards, existing traffic conditions and single automobile household between the years 1940 to 1980, that certain travel corridors should be designation as a Restraint Street/Roadway. A restraint street is a street or roadway that requires the removal of existing building structures (residential and commercial) for the acquisition of additional right of way for street widening (additional traffic lanes, bike lanes, parking, sidewalks) would be cost prohibited and not feasible under the existing conditions to reduce future traffic congestion. The City of McFarland Improvement Standards, Sheet R-1, (Typical Street Sections) indicates three rights of way, a sixty (60) foot (a two lane street), a ninety (90) foot (four lane undivided street) and a one hundred ten (110) foot (Four lane divided street with a twenty (20) foot median) shown in Appendix "A". None of the street sections indicate bike lanes or bike paths and all are constructed with adjacent pedestrian concrete sidewalks.

Easterly and westerly travel corridors are those streets that will connect to the future Interchanges or provide travel across SR 99. Hanawalt Road, Sherwood Avenue, Elmo Hwy and Whistler Road are the major easterly and westerly travel corridors; Perkins Avenue would be a minor, easterly and westerly travel corridor. It should also be consider that Sherwood Avenue from First street to Mast Street is a seventy (70) foot right of way and Mast Street to Garzoli Avenue is sixty (60) foot right of way be designated as a Restraint street/collector Street.

The major northerly and southerly travel corridors on the west side are Garzoli Avenue, on the east side, Bowman Avenue Alignment and Driver Road. The minor northerly and southerly travel corridors on the west side are Mast Avenue, Third Street Second Street and First Street, on the east side, Browning Road.

The Study Area Map, (Figure III-1) and the future interchanges (Figure III-3), establishes the location and extent of arterial thoroughfares in the City of McFarland and the City of McFarland Planning Area. Major objectives of the plan include coordinating access routes to planned urbanization as identified within the City’s Land Use Element.

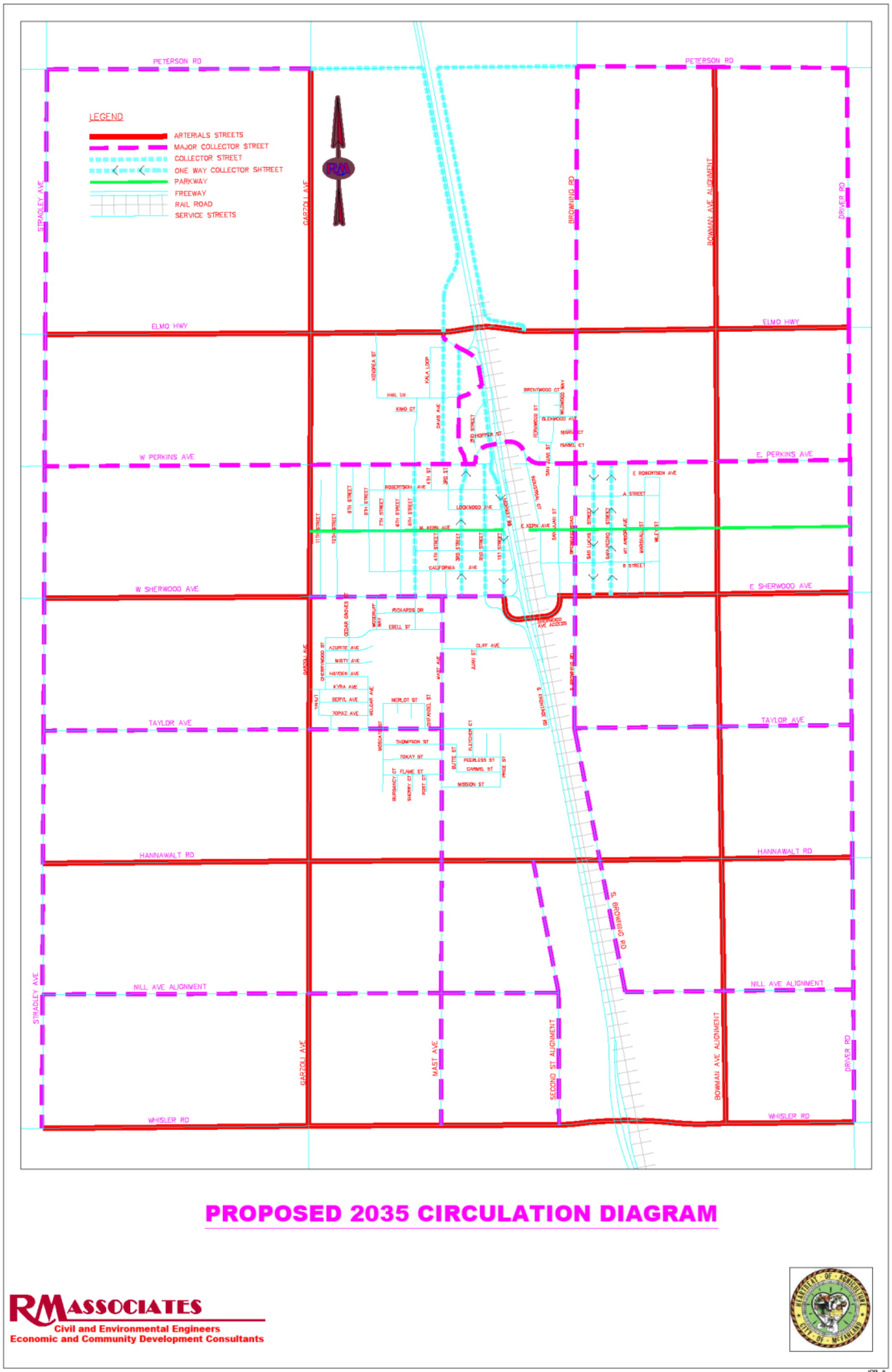


Figure III-4 2035 Proposed Circulation Diagram

2006 Arterial Streets / Roadways

The Plan shows the location of existing and future 4 lane arterial roadways. These roads include those identified within the Peters Engineering Group Study as well as some additional routs believed necessary in order to facilitate a population growth of 27,000.

In addition to the traffic impact fee schedule currently adopted by the McFarland City Council, it is recommended that the four lane street widening will be accomplished upon many of the rural roadways as a standard subdivision condition of approval for additional street width.

The City's Arterial Street System is proposed 2006 to include the following:

Peters Engineering Group recommendations –

1. Perkins Avenue from Garzoli Avenue to the Freeway Overpass,
2. Frontage Road from Elmo Hwy. to Hail Lane,
3. Browning Road from, Elmo Hwy. to Perkins Avenue,
4. Sherwood Avenue from Garzoli Avenue to SR. 99 overpass,
5. Mast Avenue from Hanawalt to Taylor Avenue,
6. Second Avenue from Kern Avenue to Perkins Avenue,
7. Perkins Avenue Freeway Overcrossing, and
8. Sherwood Avenue Freeway Overcrossing

Additional recommendations per the prior un-adopted Circulation Element Update –

9. Elmo Highway from Hiett Avenue to Driver Road,
10. Peterson Road from Garzoli Avenue to Driver Road,
11. Perkins Avenue from Freeway Overcrossing to Driver Road,
12. Garzoli Avenue from Peterson Road to Whistler Avenue,
13. Browning road from Peterson Road to Elmo Highway,
14. Browning road from Perkins Avenue to Taylor Avenue,
15. Sherwood Avenue from Freeway 99 Overpass to driver road,
16. Taylor Avenue from Garzoli Avenue to Driver Road, and
17. Industrial Street from Sherwood Avenue to Perkins Avenue

Recommendations for the 2035 Circulation Element

Arterials Streets

1. Garzoli Avenue – Whisler Rd to Peterson Rd
2. Browning Rd. Alignment- Whisler Rd to Peterson Rd Elmo Hwy- Stradley Ave to Driver Rd
3. West Sherwood Ave - Stradley Ave to Garzoui Ave
4. East Sherwood Ave – Industrial Ave to Driver Rd
5. Hanawalt Rd – Stradley Ave to Driver Rd
6. Whisler Rd - Stradley Ave to Driver Rd

Major Collector Streets

1. Stradley Ave - Whisler Rd to Peterson Rd
2. Mast Ave - Whisler Rd to West Sherwood Ave
3. Third St - Hail Lane - Frontage Rd – West Perkins Ave to Elmo Hwy
4. South Second St Alignment – Whisler Rd to Hanawalt Rd
5. South Browning Rd Alignment – Nill Ave Alignment to East Taylor Ave
6. South Browning Rd - East Taylor Ave to East Sherwood Ave
7. Browning Rd – East Sherwood Ave to Peterson Rd
8. Driver Rd - Whisler Rd to Peterson Rd
9. Nill Ave Alignment – Stradley Ave to South Second St Alignment
10. Nill Ave Alignment – South Browning Rd Alignment to Driver Rd
11. West Taylor Ave - Stradley Ave to Mast Ave
12. East Taylor Ave – South Browning Ave to Driver Rd
13. West Perkins Ave - Stradley Ave to Overpass (East Perkins Ave)
14. East Perkins Ave – Overpass (West Perkins Ave) to Driver Rd

!5. Peterson Rd - Stradley Ave to Driver Rd

Collector Streets

1. Fifth St – West Sherwood to West Perkins Ave
2. Second St - West Sherwood to West Perkins Ave
3. Davis St - West Perkins Ave to Elmo Hwy
4. Third St – Hail lane to Frontage Rd
5. Frontage Rd - West Perkins Ave to Hail lane
6. Kern Ave - Garzoli Ave to First St
7. Kern Ave – Industrial St to Wiley St
8. Kern Ave Alignment – Wiley St to Driver Rd

Implementation Plan

An implementation plan is provided outlining both planned timing of funding and sources of funding for the various projects (please see Figure III on the following page). This roadmap will be used by city staff as a planning tool recognizing that funding opportunities may materialize requiring some adjustments, as appropriate. The funding horizons may also change and adjustments will be made accordingly.

The important element is to keep a pro-active approach to securing funding opportunities in order to accomplish as much of the planned improvements within the timeframe provided.

Funding Matrix
Figure III- 5

PROJECTS	TIMING			POTENTIAL FUNDING SOURCES											
No. Project/Project Element	Short-Term (1-2 Years)	Mid-Term (2-5 Years)	Long-Term (>5 Years)	Federal RSTP	Federal TEA	Federal CMAQ	Federal HSIP	Federal Caltrans SR2S	State STIP	State Technical Assistance	State SHOPP	Other State Funding Sources	Local Transportation Funds	General Fund	Developer Impact Fees
ARTERIAL STREETS															
Garzoli Avenue – Taylor Ave to W. Sherwood Ave - Road widening - Curb, gutter, sidewalk		X		X	X				X			X	X	X	X
Garzoli Avenue – W. Sherwood Ave to W. Kern Ave - Road widening - Curb, gutter, sidewalk -Landscaping	X			X	X	X			X			X	X	X	X
Garzoli Avenue – W. Kern Ave to W. Perkins Ave - Road widening - Curb, gutter, sidewalk -Landscaping	X			X	X	X			X			X	X	X	X
Garzoli Avenue - W. Perkins Ave to Elmo Hwy - Road widening - Curb, gutter, sidewalk -Landscaping		X		X	X	X			X			X	X	X	X
Garzoli Avenue – Whisler Rd to Taylor Ave - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X
Garzoli Avenue – Elmo Hwy to Peterson Rd - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X
Elmo Hwy – Stradley Ave to Garzoli Ave - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X
Elmo Hwy – Garzoli Ave to SR-99 - Road widening - Curb, gutter, sidewalk -Landscaping		X		X	X	X	X		X			X	X	X	X
Elmo Hwy – SR-99 to Browning Rd - Road widening - Curb, gutter, sidewalk -Landscaping		X		X	X	X	X	X	X			X	X	X	X
Elmo Hwy – Browning Rd to Driver Rd - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X		X	X			X	X	X	X
W. Sherwood Ave – Stradley Ave to Garzoli Ave - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X
E. Sherwood Ave – Industrial Ave to Driver Rd - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X
Hanawalt Rd – Stradley Ave to S. Frontage Rd - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X

Figure III- 5 – Continued

Hanawalt Rd – S. Browning Rd to Driver Rd - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X
MAJOR COLLECTOR STREETS															
Stradley Ave – Whisler Ave – Peterson Ave - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X
Mast Ave – Whisler Rd to W. Sherwood Ave - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X		X	X			X	X	X	X
Third St –W. Perkins Ave to Elmo Hwy - Road re-construction - Curb, gutter, sidewalk			X	X	X	X			X			X	X	X	
Hail Lane – 5^{TH} St to Davis Ln - Road widening - Curb, gutter, sidewalk			X		X	X			X			X	X	X	X
S Second St Alignment – Whisler Rd to Hanawalt Rd			X		X	X			X			X	X	X	X
S. Browning Rd – E Taylor Ave to E Sherwood Ave			X	X	X	X			X			X	X	X	X
Browning Rd – E. Sherwood Ave to E. Kern Ave - Road Re-construction - Curb, gutter, sidewalk	X			X	X	X		X	X			X	X	X	
Browning Rd – E. Kern Ave to E. Perkins Rd. - Road Re-construction - Curb, gutter, sidewalk	X			X	X	X		X	X			X	X	X	
Browning Rd – E. Perkins Ave to Elmo Hwy - Road Re-construction - Curb, gutter, sidewalk	X			X	X	X		X	X			X	X	X	X
Browning Rd – Elmo Hwy to Peterson Rd - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X
Driver Rd – Whisler Rd to Peterson Rd - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X
Nill Ave Alignment – Stradley Ave to S. Second St Alignment - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X
Nill Ave Alignment – S. Browning Rd Alignment to Driver Rd - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X
W. Taylor Ave – Stradley Ave to Garzoli Ave - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X
W. Taylor Ave – Garzoli Ave to Mast Ave - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X		X	X			X	X	X	X
E. Taylor Ave – S. Browning Ave to Driver Rd - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X
W. Perkins Ave – Stradley Ave to Garzoli Ave - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X			X			X	X	X	X

Figure III- 5 – Continued

W. Perkins Ave – Garzoli Ave to Frontage Rd - Road widening - Curb, gutter, sidewalk -Landscaping		X		X	X	X			X			X	X	X	X
E. Perkins Ave – Industrial Rd to Driver Rd - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X		X	X			X	X	X	X
Peterson Rd – Stradley Ave to SR-99 - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X	X		X			X	X	X	X
Peterson Rd – SR-99 to Driver Rd - Road widening - Curb, gutter, sidewalk -Landscaping			X	X	X	X	X		X			X	X	X	X
COLLECTOR STREETS															
5th Street – W. Sherwood to W. Perkins Ave - Road re-construction - Curb, gutter, sidewalk		X			X	X	X		X			X	X	X	
2nd Street – W. Sherwood to W. Perkins Ave - Road re-construction - Curb, gutter, sidewalk		X			X	X	X	X	X			X	X	X	
Davis Street – W. Perkins Ave to Elmo Hwy - Road re-construction - Curb, gutter, sidewalk		X			X	X	X		X			X	X	X	
3rd Street – Hail Ln. to Frontage Rd - Road re-construction - Curb, gutter, sidewalk			X		X	X	X		X			X	X	X	
Kern Ave – Garzoli Ave to First St - Road re-construction - Curb, gutter, sidewalk - Landscaping		X		X	X	X	X	X	X			X	X	X	
Kern Ave – Industrial St to Wiley St - Road re-construction - Curb, gutter, sidewalk - Landscaping			X	X	X	X	X	X	X			X	X	X	
Kern Ave Alignment – Wiley St to Driver Rd - Road construction - Curb, gutter, sidewalk -Landscaping			X	X	X	X	X	X				X	X	X	X

INTERCHANGES															
Whisler Road -Reconstruct Interchange			X	X			X		X			X	X	X	X
Hanawalt Avenue -Construct Interchange - Realign State Route 99			X	X			X		X			X	X	X	X
Sherwood Avenue -Reconstruct Interchange -Realign Cross Streets			X	X			X		X			X	X	X	X
Perkins Avenue -Remove NB Freeway Access			X	X			X		X			X	X	X	X
Elmo Highway -Reconstruct Interchange -Realign State Route 99			X	X			X		X			X	X	X	X

* Other State Funding Sources include monies through Community Development Block Grants and other grants

Speed Limits

The existing speed limit for the City of McFarland is 25 miles per hour. It is anticipated on major streets when the traffic signals are in place the speed limit will increase to 30 miles per hour.

1991 CIRCULATION ELEMENT

While the City of McFarland adopted a Consolidated General Plan Update in 1991, including a Circulation element, the Future Circulation Map, (see Figure III-5), was actually a reflection of the 1972 Circulation Element. Therefore, the 1991 Circulation Element is in reality 25 years old, planned for a City of 10,000 and clearly obsolete for the present day City of McFarland which is anticipated to grow by 15,000 or more residents within the next 20 years. It is noteworthy to point out that according to the 1991 Circulation Element no modifications were proposed to the City's freeway interchange system. Further, while arterial streets were identified, no roadways have been widened to four lanes. The following recap of the 1991 Circulation Element should be helpful in understanding the city's current traffic flow design and circulation assumptions made until the present. The Freeway determines the way in which traffic flows through the City, for two reasons:

1) the freeway is the source and destination for vehicular traffic, the freeway off-ramps constitute a traffic source, and the on-ramps a traffic destination, from which respectively, automobiles are added to or removed from the City's street system, The circulation system must be designed to absorb incoming traffic from the freeway, and distribute outgoing traffic, with a minimum disruption to the local traffic flow pattern, and,

2) it is the obvious impossibility of transecting the freeway except at the predetermined points of overpasses, (Perkins, Sherwood, and Elmo). Thus the freeway constitutes a barrier to the local flow pattern. Despite its influence, the freeway is not a part of McFarland's internal circulation system. Vehicles use City streets, not the freeway, in getting from one part of town to another. Certain City streets are and should be, more heavily traveled than others. This is the essence of the arterial-collector method of handling traffic.

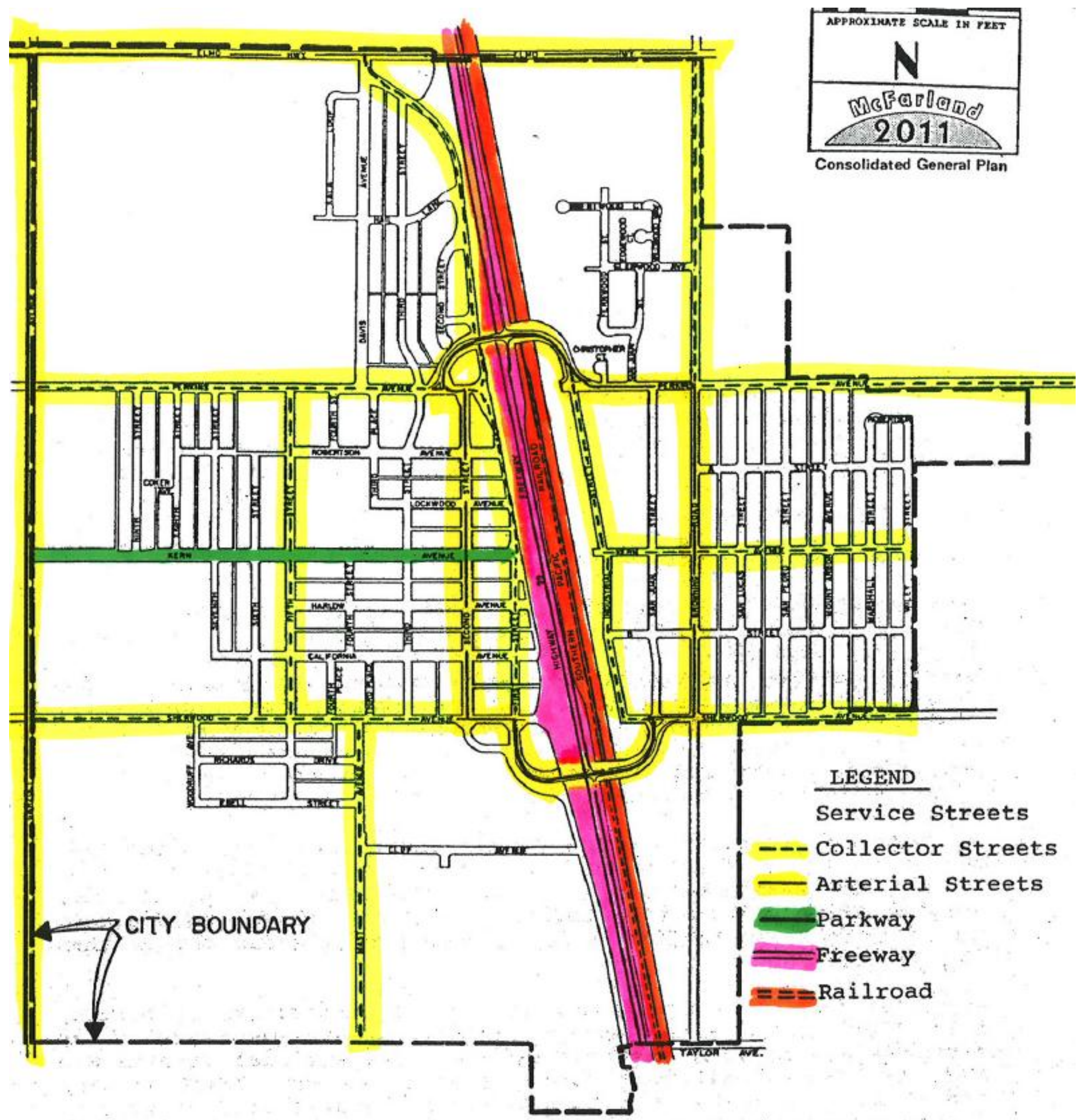


Figure III-5 1991 to 2011 City of McFarland Circulation Map

2011 LIMITED TRAFFIC ANALYSIS

Two components of the 2006 Peter's Engineering Group traffic model use for the traffic analysis in the preparation of the 2007 Revise Traffic Impact Fee Study for the city of McFarland have had substantial changes since the preparation of the original traffic model and traffic analysis in 2006.

The first component of traffic model that is substantially change is the development of a new updated draft Land Use Diagram/Land Use Element in 2011 by the McFarland planning department and a planning consultant. Second component was the preparation of a draft State Route 99-McFarland Interchange Feasibility Study in 2011 by the Kern County Council of Governments (Kern COG).

Substantial difference between the McFarland 2006 Traffic Impact fee Study Proposed Land Use Map (Refer to Figure III- 6) and the 2011 Draft Land Use Diagram/Land Use Plan, (Refer to Figure III-7) was the decrease in Industrial acreage and the increase in Commercial acreage
(Refer to Table "III-01") on the westerly and easterly side of SR 99

TABLE "III-01"

GENERAL LAND USE DESIGATION	2006 TRAFFIC IMPACT FEE STUDY (ACRES)	2011 DRAFT LAND USE PLAN (ACRES)	2011 DRAFT LAND USE DIAGRAM (ACRES)
RESIDENTIAL	**1037**	**713**	**962**
COMMERCIAL	**15**	**333** (1)	**392**(1)
INDUSTRIAL	**735**	**383**	**373**
TOTAL	**1,787**	**1,429**	**1,727**

(1) THE AVERAGE DAILY TRIP GENERATION FACTOR PER ACRE FOR COMMERCIAL (450 TO 900) IS 7.5 TO 15.0 GREATER THAN THE AVERAGE DAILY TRIP GENERATION FACTOR PER ACRE FOR INDUSTRIAL (60).

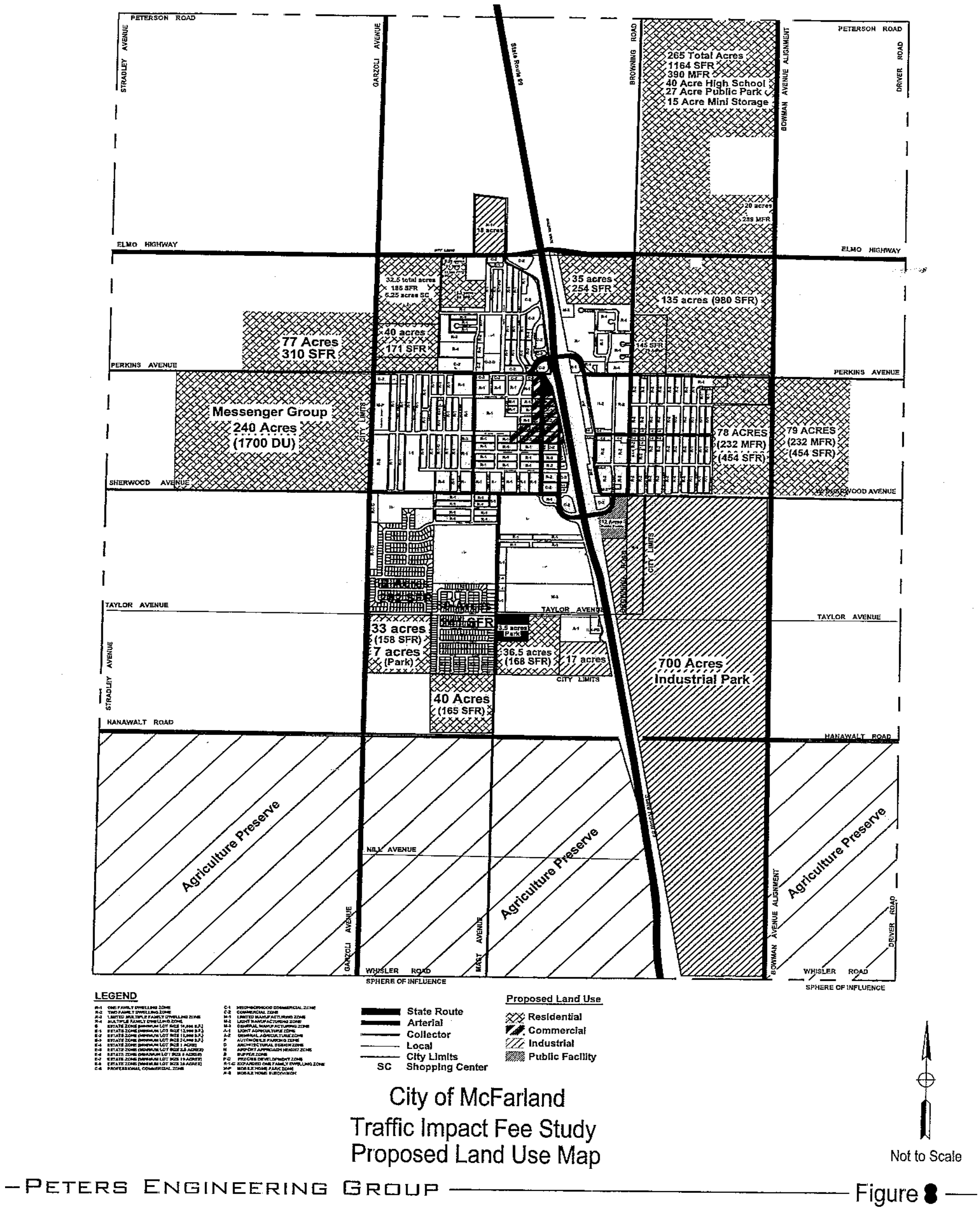
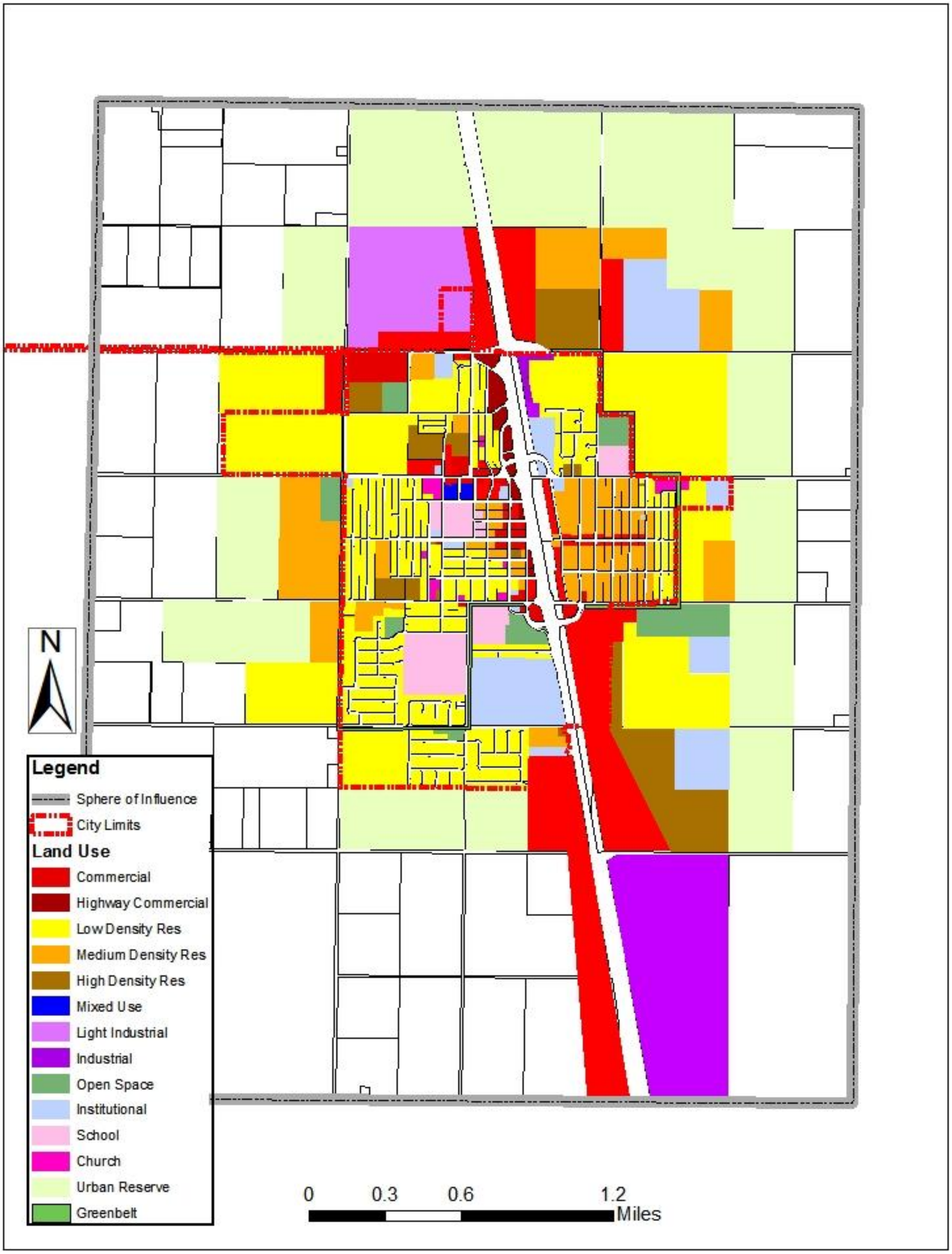


Figure III-6 McFarland 2006 Traffic Impact fee Study Proposed Land Use Map



McFarland Planning Consultant – Created on April 5, 2011

Figure III-7 - 2011 Draft Land Use Diagram

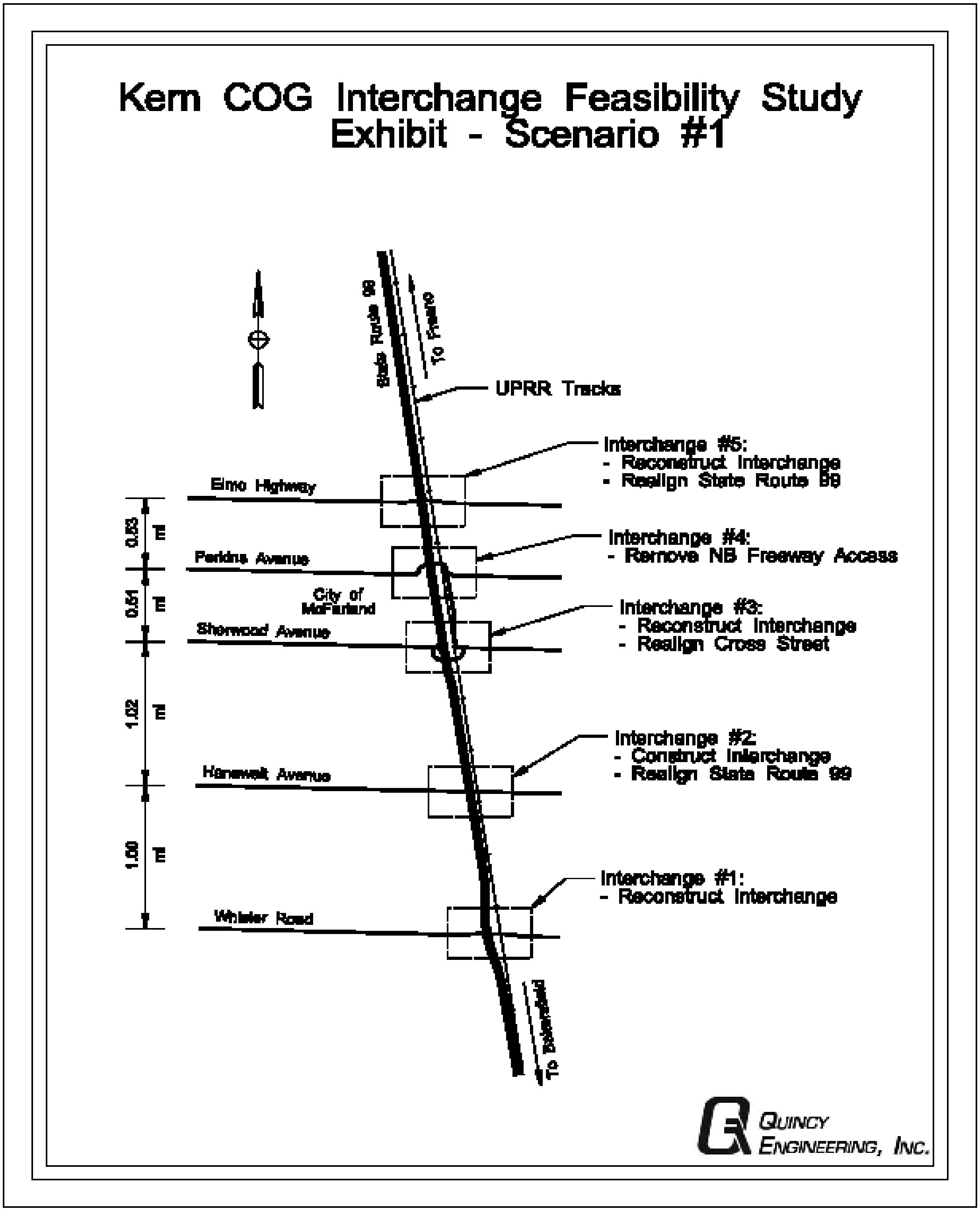


Figure III-8 - State Route 99-McFarland Proposed Interchange locations

Interchange Feasibility Study

State Route 99-McFarland Interchange Feasibility Study (Refer to Figure III-8) proposed to completely alter the configurations of the existing overcrossing bridge crossings and ramp connections to SR 99 for Sherwood Avenue, Perkins Avenue and Elmo Hwy. The study also include the future addition of one new interchange at Hanawalt Road alignment and the reconstructions of the Whisler Road interchange with two additional lanes and a reconfiguration of the SR 99 southbound off ramp and on ramp.

Sherwood Avenue is proposed to be a two lane Partial Cloverleaf Interchange that will be constructed northerly of existing bridge overcrossing on the original alignment of Sherwood Avenue, with the reconstruction of SR 99 northbound and southbound on and off ramps with Traffic Signalizations at the future ramp connections. This will required the removal of the existing frontage road on easterly side between Sherwood Avenue and Perkins Avenue.

Perkins Avenue bridge overcrossing is proposed to remain as is but will include the removal of both SR 99 northbound on ramp and off ramp. It will remain as a two lane bridge overcrossing of SR 99 providing only traffic connections between the easterly existing and future residential development and the existing and future westerly commercial development. No ADA pedestrian's improvements are proposed or the addition of westerly and easterly bicycle lanes are proposed for the existing bridge overcrossing or for the bridge approaches.

Elmo Hwy is proposed to be a two lane Partial Cloverleaf Interchange that will be constructed northerly of existing bridge overcrossing and required the realignment/reconstruction of State Route 99 in a westerly direction (similar to existing Whisler Road Interchange) to provide sufficient room on the easterly side between the realign SR99 and the existing BNSF Railroad for the construction of both SR99 northbound on and off ramps.

Hanawalt Road is proposed as new partial cloverleaf interchange that will be constructed on existing Hanawalt alignment and similar to the future Elmo Hwy interchange required the realignment/reconstruction of State Route 99 in a westerly direction to provide sufficient room on the easterly side between the realign SR99 and the existing BNSF Railroad for the construction of both SR99 northbound on and off ramps.

Traffic Analysis

RM Associates has prepared a Limit Traffic Analysis to determine the future lane configuration for the following listed streets that provide east to west and west to east Automobile-Transit-Bicycle-Pedestrian Circulation across State Route 99:

- Sherwood Avenue
- Elmo Hwy
- Perkins Avenue
- Whisler Road
- Hanawalt Road
-

Traffic analysis will assist in the determination of not only a two lane or four lane configurations, but also a functional and feasible street classification as a Arterial Avenue/Road or as Collector Avenue/Road. To provide some flexability in the analysis for future revisions to the draft Land Use Diagram/Land Use Plan and future traffic impacts to the major westerly easterly traffic circulation corridors, the city was broken into twelve (12) areas, six (6) on west side and six (6) on east side (Refer to Figure III-9).

The individual twelve (12) areas were approximate half section each (320 acres), a half mile north to south and one mile west to east for a total area of 4,010 acres.

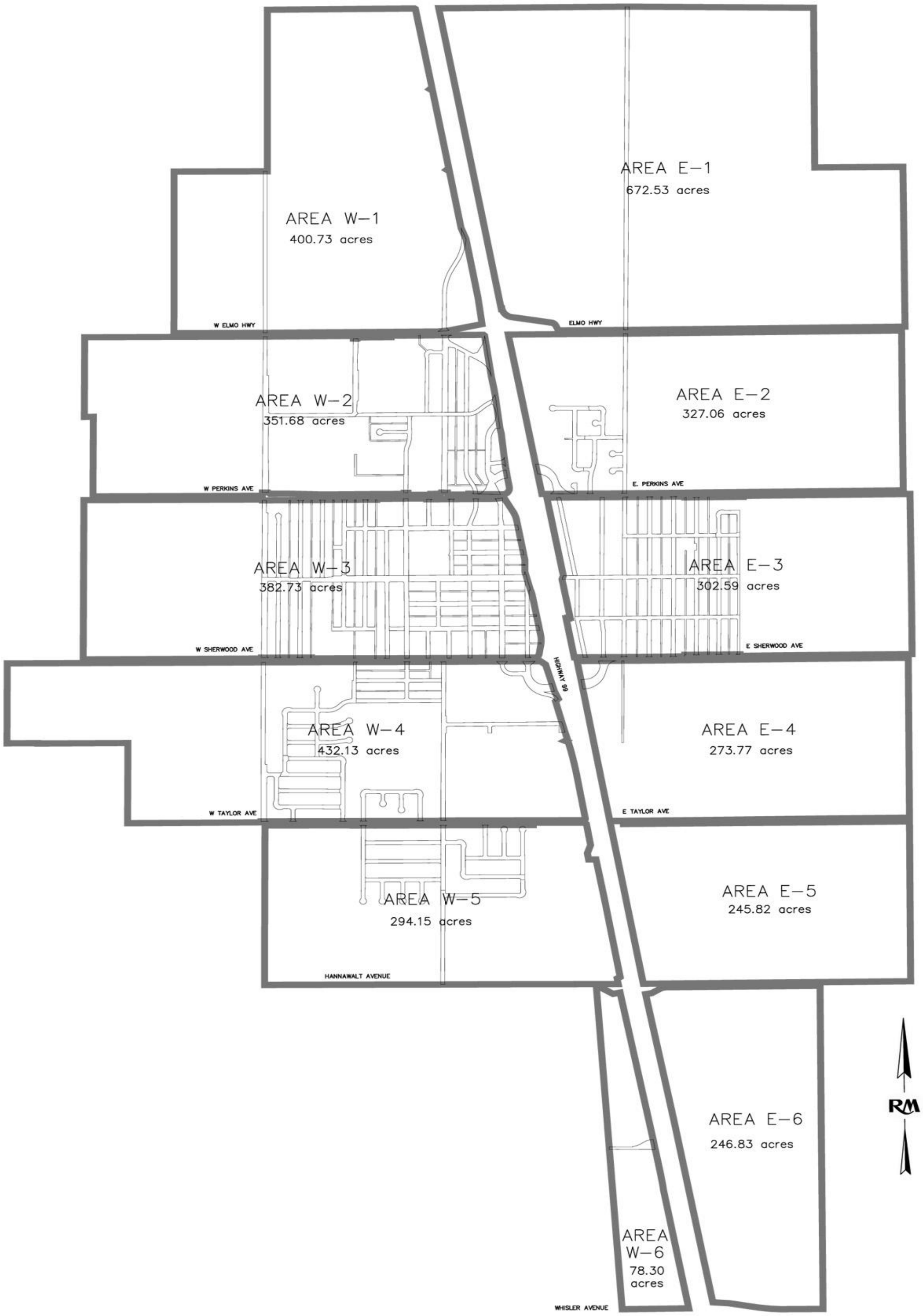


FIGURE III - 9 Twelve Area Diagram

The Limit Traffic Analysis (Refer to Appendix "E") consisting of three parts: Traffic Trip Generations; Traffic Trip Distributions; and Traffic Trip Assignments.

Trip Generations

Table III-02 Land Use Average Daily Trip Generation Factors:

LAND USE DESIGNATION	LAND USE TRIP GENERATION FACTOR PER ACRE
Low Density Residential	40
Med Density Residential	52
High Density Residential	64
Mixed Used	230
Commercial	450
Highway Commercial	900
Industrial	60
Light Industrial	60
School	150
Church	100
Institutional	100
Greenbelt / Open Space / Urban reserve	2

Table III-03 AM and PM Peak Hour Traffic percentages of Average Daily Traffic

LAND USE	AM	PM
Residential	8%	10%
Commercial - Shopping Centers	4%	10%
Commercial- Retail	8%	10%
Commercial - Office	10%	14%
Industrial	12%	12%

Table III- 04 General Average Daily Trip Generation and PM Peak Hour for 320 Acre parcel of the following land use combinations:

LAND USE	**AVERAGE DAILY TRAFFIC**	**PM PEAK HOUR TRAFFIC**
Residential	**12,000**	**1,200**
Residential and Commercial	**24,000**	**2,400**
Commercial	**36,000**	**4,300**
Industrial	**12,000**	**1,500**

Revised Trip Generations were required because of the updated and expanded Land Use Diagram (Refer to Figure III-2 & III-7) / Land Use plan. Revised Trip Distributions and Trip Assignments was required because of the future interchanges (Refer to Figure III-3 & III-8) at only Hanawalt Road, Sherwood Avenue, Elmo Hwy(Draft SR 99-McFarland Interchange Feasibility Study), the two lane existing interchange at Whisler Road and the two lane existing Perkins Avenue overcrossing with no ramp connections to State Route 99

ACCIDENTS

The City of McFarland Police Department supplied Records from January 1, 2010 to June 1, 2011 showing where collisions occurred. See Accidents Locations (Figure ACC1) in Appendix I and Table Table III-05 on the following page. The Police Department also identified 5 problem areas: 1st and West Sherwood, Mast and West Sherwood, 3rd Street and West Kern, Perkins Overpass, and the Sherwood Overpass (Northbound Highway 99 exit-blind stop sign). The Police Department also mentioned missing and faded street signs.

According to the California Highway Patrol Accident Investigation Unit-Statewide Integrated Traffic Records System (SWITRS) from 2004-2008 for accidents in McFarland, there has been 0 fatal, 37 injuries, 78 property damage, 6 alcohol involved injuries, 10 pedestrian involved injuries, and 0 bicycle involved injuries. See Tables 6 to 10 in Appendix I for yearly accidents and Accident Locations – TIMS (See Figure –AC2) for severe accidents.

TABLE III-05
COLLISIONS IN MCFARLAND
JANUARY 1, 2010 TO JUNE 1, 2011

Type	Area 1	Area 2	Area 3	Area 4	Area 5
Non-Injury	5	24	6	2	11
Injury	1	4	0	0	3
Hit and Run	3	18	2	2	10
Hit and Run with Injury	1	3	0	0	1

2006 TRAFFIC ANALYSIS

Peters Engineering Group was hired by the City of McFarland in 2006 to prepare a Traffic Impact Fee Study to serve as a comprehensive transportation management strategy. This analysis of existing conditions within the City and projected future development based upon build out served as the City's basis to adopt Traffic Impact Fees which shall be levied against new commercial, industrial and residential development.

The anticipated growth through the year 2031 is expected to significantly increase the volume of traffic on the City's circulation system. It is anticipated that improvements to the street network, including lane additions and the installation of traffic signals, will be required to maintain acceptable levels of service on the city streets. The projected growth in the City of McFarland is identified within the future land use map found within the Land Use Element of this General plan update

The Peters report includes analysis of the following road segments:

1. Elmo Highway — Garzoli Avenue to State Route (SR) 99 ramps
2. Garzoli Avenue — Peterson Road to Taylor Avenue
3. Sherwood Avenue — Garzoli Avenue to Browning Avenue
4. Browning Avenue — Peterson Road to Taylor Avenue
5. Industrial Street — Perkins Avenue to Sherwood Avenue
6. Perkins Avenue — Garzoli Avenue to Industrial Street
7. Mast Avenue — Sherwood Avenue to Taylor Avenue
8. 1st Street — Sherwood Avenue to Kern Avenue
9. 2nd Street — Frontage Road to Kern Avenue
10. 3rd Street — Hail Lane to Kern Avenue
11. San Juan Street — Sherwood Avenue to Kern Avenue
12. Frontage Road — Elmo Highway to Perkins Avenue
13. Davis Street — Perkins Avenue to Hail Lane
14. Whisler Road — Mast Avenue to Northbound SR 99 ramps

<u>The Peters' report also includes analysis of the following intersections</u>:

1. 1st/ Sherwood	12. Browning / Elmo
2. San Juan / Sherwood	13. Garzoli / Sherwood
3. Browning / Sherwood	14. Mast / Sherwood
4. Browning / Perkins	15. 2nd / Sherwood
5. Industrial / Perkins	16. 2nd/Kern
6. 2nd / Perkins	17. SR 99 / Elmo (Frontage)
7. 3rd / Perkins	18. SR 99 / Perkins
8. Frontage Road / Perkins	19. SR 99 Northbound Ramps / Sherwood
9. Garzoli / Elmo	20. SR 99 Southbound Ramps / Sherwood
10. Frontage Road /Perkins	21. SR 99 Northbound Ramps / Whisler
11. Garzoli / Perkins	22. SR 99 Southbound Ramps / Whisler

The study intersection and road segment locations are identified in *Table 4*. The study time periods include the weekday a.m. and p.m. peak hours between 7:00 and 9:00 a.m. and between 4:00 and 6:00 p.m. The peak-hour scenarios were analyzed for the existing conditions and the anticipated future conditions with the proposed land uses.

For purposes of this study, it is assumed that the existing configurations will be maintained unless the analyses suggest that mitigations are required.

Currently there are no four lane roadways within the City of McFarland. THE PETERS' ANALYSIS IDENTIFIED THE FOLLOWING ROADWAYS AS APPROPRIATE FOR WIDENING TO FOUR TRAVEL LANES:

1. Perkins Avenue from Garzoli Avenue to the Freeway Overpass,
2. Frontage Road from Elmo Hwy. to Hail Lane,
3. Browning Road from, Elmo Hwy. to Perkins Avenue,
4. Sherwood Avenue from Garzoli Avenue to SR 99 overpass,
5. Sherwood Avenue from SR 99 Overpass to Browning
6. Mast Avenue from Sherwood to Taylor Avenue,
7. Second Avenue from Kern Avenue to Perkins Avenue,
8. Perkins Avenue Freeway Overcrossing, and
9. Sherwood Avenue Freeway Overcrossing

Existing traffic volumes were determined by the independent traffic counting firm of Southland Car Counters. Southland performed manual turning movement counts at the study intersections and the results provided within Appendix A of the Traffic Impact Study prepared by Peters Engineering Group. The Kern Council of Governments (Kern COG) maintains a computerized traffic model for use in forecasting future traffic volumes based on build-out of the planned or anticipated land uses.

The year 2030 traffic model was revised by Kern COG staff to include the anticipated growth within the City of McFarland described in Figure III-10. Model output illustrating the daily traffic volumes for the years 1998 and 2030 is included in Appendix B of the Traffic Impact Study prepared by Peters Engineering Group

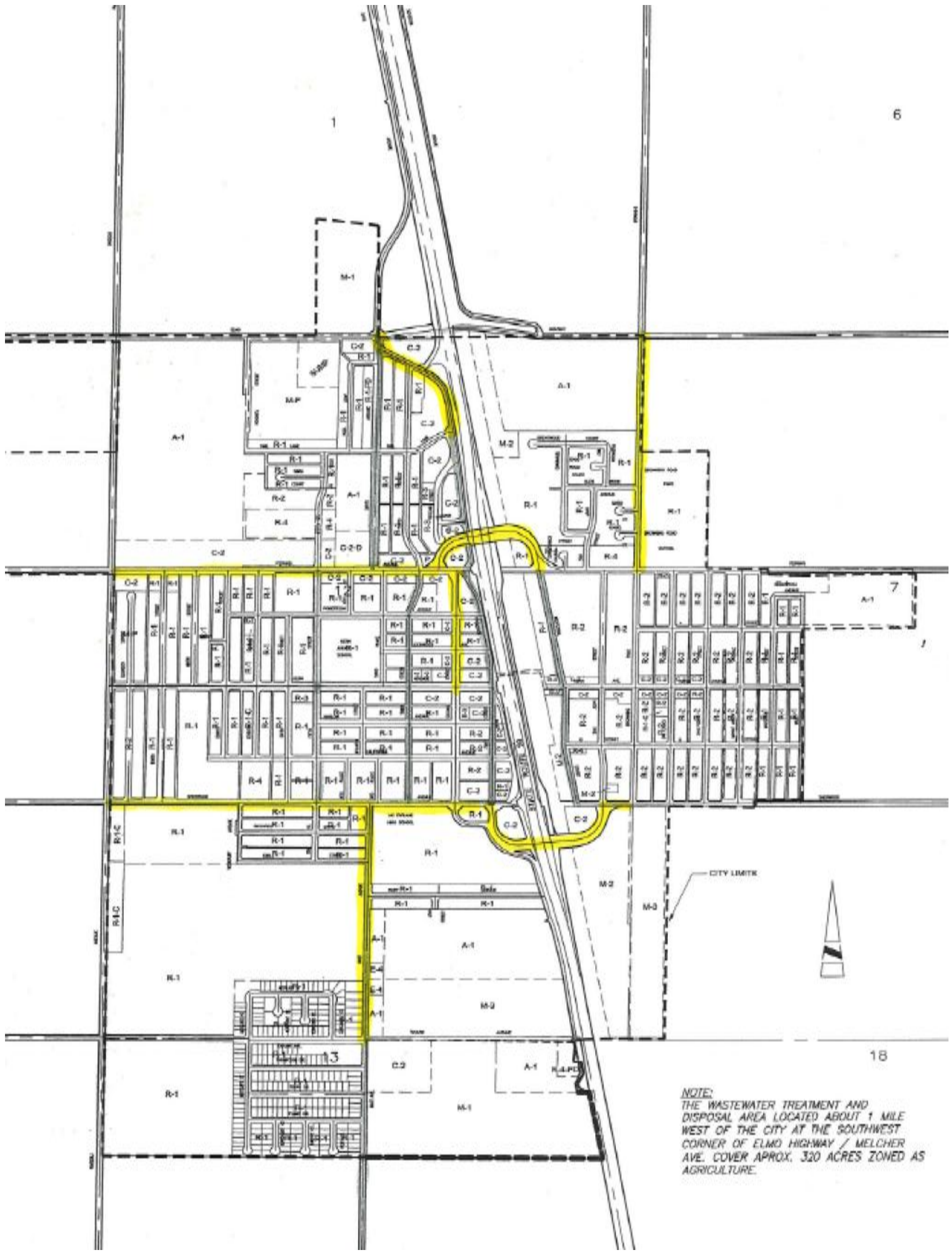


FIGURE III-10
CITY OF MCFARLAND ROADWAYS TO BE WIDENED TO 4 LANE BASED UPON PETERS ENGINEERING GROUP ANALYSIS

The Kern County travel model provides projections of the daily traffic volumes for the years 1998 and 2030. The difference in traffic volumes between the future model run and the base year (1998) model run indicates the amount of growth the model predicts during the given time period.

Future turning-movement traffic volumes were projected based on the methods presented by the Transportation Research Board National Cooperative Highway Research Program Report entitled "Highway Traffic Data for Urbanized Area Project Planning and Design". A minimum growth rate of three percent per year was maintained on each approach.

The intersection levels of service (LOS) were determined using a computer program for signalized and unsignalized intersections, which is based on the 2000 Highway Capacity Manual procedures for calculating levels of service. Level of service characteristics for unsignalized intersections and signalized intersections are presented in Tables 1 and 2 below and are based on information provided in the *2000 Highway Capacity Manual.*

Table III-06
Level of Service Characteristics for Unsignalized Intersections

Level of Service	Description	Average Control Delay (seconds/vehicle)
A	Little or no delay	0-10
B	Short traffic delays	>10-15
C	Medium traffic delays	>15-25
D	Long traffic delays	>25-35
E	Very long traffic delays	>35-50
F	Excessive traffic delays	>50

2006 INTERSECTIONAL ANALYSIS

The results of the intersection level-of-service calculations are shown in the attached Table 4, along with anticipated mitigations and associated cost estimates that will be required to accommodate the year 2030 traffic volumes projected by the Kern County traffic model.

The intersection analyses have been submitted by Peters Engineering Group. Where the intersections are controlled by one-way or two-way stop signs with the major street not required to stop, the level of service for the side street with the greatest delay is presented. The overall intersection level of service is not defined by the *Highway Capacity Manual* for this condition. The lane configurations required to maintain minimum acceptable levels of service at the study intersections based on the year 2030 travel model projections are presented below.

Table III-07
Level of Service Characteristics for Signalized Intersections

Level of Service	Description	Average Control Delay (seconds/vehicle)
A	Uncongested operations; all queues clear in a single cycle	0-10
B	Very light congestion; an occasional phase is fully utilized.	>10-15
C	Light congestion; occasional queues on approaches.	>15-25
D	Significant congestion on critical approaches, but intersection is functional. Vehicles required to wait through more than one cycle during short peaks. No long-standing queues formed.	>25-35
E	Severe congestion with some longstanding queues on critical approaches. Traffic queue may block nearby intersection(s) upstream of critical approach(es).	>35-50
F	Total breakdown, significant queuing.	>50

Table 3 identifies and provides a description of the six levels of service quantified by the Transportation Research Board

Table III-08
Intersection Analysis Summary

Intersection	Level of Service				Future (2030) Mitigations*	Future (2030) Mitigated LOS		Cost ($)
	Existing		Future (2030)					
	AM	PM	AM	PM		AM	PM	
1. Sherwood Ave. & 1st Ave	D	D	F	F	Signalize, 2NBLT, 2EBT, 2WBT	C	C	$500,000
2 Sherwood Ave. & San Juan	C	F	E	F	Signalize, 2NBR	A	B	$300,000
3 Sherwood Ave. & Browning Ave.	B	B	F	F	Signalize, 2EBT	C	C	$275,000
4 Perkins Ave. & Browning Ave.	A	A	F	F	Signalize, 2EBT, 2WBT, 2NBT, 2SBT	B	B	$275,000
5 Perkins Ave & Industrial Ave	A	B	C	F	Signalize, 1 WBR	B	A	$275,000
6 Perkins Ave. & 2nd Ave.	C	F	F	F	Signalize, 2EBT, 2WBT, 2NBT, 2SBT	B	C	$275,000
7 Perkins Ave. & 3rd Ave	B	C	F	F	Signalize, 2EBT, 2WBT	B	B	$275,000
8 Perkins Ave. & Frontage Rd.	A	B	C	F	Signalize, 1 EBR	A	B	$275,000
9 Perkins Ave & Davis Ave.	B	B	C	F	Signalize, 2EBT, 2WBT	B	B	$275,000
10 Elmo Hwy & Garzoli Ave.	A	A	B	C	No Mitigation needed	B	C	N/A
11 Perkins Ave. & Garzoli Ave.	A	A	F	F	Signalize, 2EBT, 2WBT	B	B	$275,000
12 Elmo Hwy & Browning Ave.	A	B	F	F	Signalize, 2NBT	B	B	$275,000
13 Sherwood Ave. & Garzoli	A	B	F	F	Signalize, 2EBT, 2WBT	B	C	$275,000
14 Sherwood Ave. & Mast Ave.	C	C	F	F	Signalize, 2EBT, 2WBT, 2NBT	B	B	$275,000
15 Sherwood Ave. & 2nd Ave.	B	B	F	F	Signalize, 2EBT, 2WBT, 2NBT, 2SBT	B	B	$275,000
16 Kern Ave. & 2nd Ave.	A	A	A	B	No Mitigation needed, 2NBT, 2SBT	A	B	N/A
17 Frontage Rd. & SR 99	A	A	F	F	Signalize, 2EBT, 2WBT	B	B	
18 Perkins Ave. & SR 99 NB Ramps	C	D	F	F	Signalize, 2EBT, 2WBT, 1SBR	B	C	
19 Sherwood Ave. & SR 99 SB	N/A	N/A	N/A	N/A	No mitigation needed	N/A	N/A	**
20 Sherwood Ave. & SR 99 NB	A	A	B	B	No mitigation needed	C	C	N/A
21 Whisler Ave. & SR 99 NB Ramp	A	B	B	B	No mitigation needed	B	B	N/A
22 Whisler Ave. & SR 99 SB Ramp	A	A	A	A	No mitigation needed	B	A	N/A

Submitted by Peters Engineering Group, 2006

2006 ROAD SECTION ANALYSIS

The results of the road segment level-of-service calculations are identified within Peters' report to the City of McFarland, along with anticipated mitigations and the associated cost estimates that will be required to accommodate the year 2030 traffic volumes projected by the Kern County traffic model.

Table III-09
Level of Service Characteristics for Roadways

Level of Service	Description
A	Primarily free flow operations
B	Reasonably unimpeded operations, ability to maneuver only slightly restricted
C	Stable operations, ability to maneuver and select operating speed affected
D	Unstable flow, speeds and ability to maneuver restricted
E	Significant delays, flow quite unstable
F	Extremely slow speeds

Reference:1998*Highway Capacity Manual,* Transportation Research Board

2006 INTERCHANGE DEFICIENCY ANALYSIS

There are potential operational and safety issues related to the existing interchange configurations along the SR 99 freeway. There are four interchanges within the study area and one location at which a fifth interchange may be considered. The interchange locations are illustrated in Figures 3. The interchanges are generally non-standard configurations and are constrained by the presence of a railroad east of SR 99. Caltrans typically requires that a Project Study Report (PSR) be prepared for any project proposing improvements to state facilities that will exceed $1 million dollars in construction costs. It is anticipated that any improvements or modifications of the interchange configurations will likely require a PSR. The purpose of the PSR is to identify the feasible improvements and associated costs once the need for improvements has been identified. A summary of possible improvements is presented below.

<u>Elmo Highway / State Route 99</u>

It is anticipated that signalization will be required in the future at the Frontage Road/SR 99 southbound ramps intersection. It is also anticipated that the interchange of Elmo Highway and SR 99 would benefit from future construction of a tight diamond configuration on the west side of the freeway. The revised interchange configuration would provide safety and operational benefits.

An example of this would be eliminating the need of drivers to travel through two intersections to access the SR 99 ramps. With the tight diamond configuration, drivers would only need to pass through one signalized intersection for movements on and off the freeway.

Similar improvements would be beneficial on the east side of the freeway, but may not be feasible due to the existing railroad tracks. For the purposes of this report, improvements to the east side of the interchange have not been considered.

Perkins Avenue / State Route 99

The Perkins Avenue interchange includes an existing tight diamond (Caltrans Type L-1) configuration for the northbound ramps on the east side of the freeway. The tight diamond alignment is possible at this location because the railroad alignment meanders easterly away from the freeway at the interchange.

There are no southbound ramps at the interchange. Due to the alignment of the existing frontage road, the developed parcels along the west side of the freeway, and Caltrans minimum requirements for spacing between ramps, it is not feasible to construct southbound access ramps at this location. SR 99 southbound on/off movements would continue to occur at the Elmo Highway and Sherwood Avenue interchanges. Based upon the traffic capacity analysis, this configuration will be sufficient to maintain minimum levels of services at the interchange ramp intersections.

In order to maintain minimum level-of-service requirements on the state facilities, the overcrossing structure will need to be widened from two lanes to four lanes and the intersection of the northbound ramps and Perkins Avenue is expected to require signalization and widening in the future.

Sherwood Avenue / State Route 99

The configuration of this interchange is very similar to that described for the Perkins Avenue interchange except that the overcrossing structure is offset to the south instead of the north and southbound hook ramps exist just north of Sherwood Avenue. For the reasons described in the Perkins Avenue discussion, realignment of the southbound ramps has been determined to be non feasible. The northbound ramps should be maintained in the current alignment.

In order to maintain minimum level of service requirements on the state facilities, the overcrossing structure will need to be widened from two lanes to four lanes in the future.

<u>Hanawalt Road / State Route 99</u>

Hanawalt Road currently does not intersect with SR 99. This location has been identified in this report because it is located one mile from both Sherwood Avenue and Whisler Road and is therefore a candidate for a future interchange location. The railroad is located near the eastern side of SR 99 and will likely require a mainline freeway alignment shift or a non-conventional interchange configuration such as a single point urban interchange (SPUI).

<u>Whisler Road / State Route 99</u>

Whisler Road is currently configured as a partial cloverleaf (Caltrans Type L-9) interchange on the west side and a tight diamond (Caltrans Type L-1) on the east side. The interchange is expected to operate at acceptable levels of service in the future without modifications to the existing interchange configuration.

2006 FREEWAY INTERCHANGES

The Peters Engineering Group study identified significant deficiencies related to McFarland's freeway interchanges. These were built to facilitate on and off Freeway 99 traffic at a time when the City of McFarland contained a population of 5,000. At 12,000 population these interchanges are classified at a below satisfactory service level. But when the City's population approaches 30,000, these interchanges will cease to function

The lion's share of traffic impact fees generated by the City are earmarked to pay for, or match funding intended for major rebuilding of the Sherwood and Perkins Avenue Freeway interchanges.

In all, six interchanges should be considered to facilitate new development within the city of McFarland. Rather than spending significant funds to reconstruct the Perkins Avenue interchange, the city may wish to consider a full service interchange at Taylor Avenue. Thereby prioritizing Developer impact fees on behalf of a new interchange at Taylor, (and keeping Perkins Avenue as is), may provide the city with a more efficient overall circulation system. Hence the placement of "A" Alternative freeway interchange improvement designations at Taylor and Perkins

SECTION IV

TRANSIT AND RAILROADS

MCFARLAND TRANSIT SYSTEM

The City of McFarland operates a general public dial-a-ride within the city limits. The service operates Monday through Friday, from 8:00 AM to 4:00 PM. Rides are scheduled by any number of City staff, and radio dispatched to the driver. No subscription trips or advanced scheduling is permitted on McFarland Transit. No estimated time of arrival is given to passengers calling the service but, according to staff and based on a review of records; response time is quick when service is available. The City currently uses one ADA-accessible vehicle for all dial-a-ride trips. The greatest efforts to accommodate passengers are made for seniors going to the lunch program at the Senior Center, who have an informal standing reservation for dial-a-ride service. Students, who were once a significant proportion of the ridership, are no longer picked up by the service. Limited staffing affords only one in-service vehicle.

McFarland Transit averaged approximately 70 passengers per weekday for FY 2005/2006.

CONNECTIONS WITH INTER-CITY SERVICES

- **Kern Regional Transit**
  The North Kern Express bus stop is located at the McFarland Community Building on West Sherwood Avenue. McFarland residents can call the dial-a-ride service and arrange for a trip to the bus stop in order to transfer to the route.

- **Amtrak**
  To access Amtrak in Wasco, passengers may board the North Kern Express and transfer to Amtrak at the Wasco Transit Center. Amtrak and the North Kern Express schedules are not coordinated.

- **Greyhound**
  To access Greyhound, McFarland residents may take North Kern Express from the Community Building to either Bakersfield or Delano.

FARES

The one-way adult fare is $1.00. The discounted fare is $0.50 for seniors and disabled persons. Discounted 20-ride punch passes are available at City Hall for $9.00 for 10 rides (regular fare) and $9.00 for 20 rides (seniors and youth).

TABLE III-6 MCFARLAND TRANSIT FARES

FARE TYPE	FARE
Regular	$ 1.00
Senior	$ 0.50
Disabled	$ 0.50
Youth	$ 0.50
Punch Pass---Regular (10 rides)	$ 9.00
Punch Pass—Youth/Senior/Disabled (20rides)	$ 9.00

Top Destinations

To determine where the most frequent destinations are located, driver logs were reviewed for a sample week from November 27 to December 1, 2006. Palace Market and Sierra Vista Clinic were the most visited locations by McFarland Transit. Other popular destinations were the Post Office, Kern Avenue Pharmacy, Sonora Market, and City Hall.

TABLE III-7 MOST REQUESTED MCFARLAND DESTINATIONS

APPOXIMATE WEEKLEY TRIPS	PLACE NAME
21 or more	Palace Market
10 to 20	Sierra Vista Clinic
5 to 9	Post Office Kern Avenue Pharmacy
2 to 4	Sonora Market City Hall WIC Top Discount Market Maria's Pizza

*Trip information from driver logs, service between November 27 and December 1, 2006

Staff and Governance

The McFarland City Council is the decision-making body for the transit service.

McFarland Transit is operated by the Public Works Department with day-to-day operations and supervision performed by the Public Works Director. The Finance Officer oversees all budgetary issues relating to the service. McFarland currently employs two part-time drivers for the service and both drivers have other job responsibilities for the City of McFarland.

Fleet and Facilities

McFarland Transit has two vehicles used for revenue service. Both vehicles are Ford El Dorado National cutaways and seat twenty passengers. The vehicles are wheelchair accessible. The City is looking into replacing the vehicles since they are currently over their five year useful lifespan.

Vehicles are stored in the City Corporation Yard located behind City Hall at 401 W. Kern

Avenue. Maintenance is performed by Jay's Automotive, a local vendor, and the Ford dealership in Bakersfield. Vehicles are fueled at a local gas station where the City has an account.

TABLE III-8 MCFARLAND TRANSIT FLEET

Year	Make	License or VIN Number	Fuel	Own or lease	Capacity	Replacement Year	Wheelchair Accessible
1998	**Ford El Dorado National**	**1FDXE40SWHB64301**	**Unleaded**	**Own**	**20**	**2008**	**Yes**
1999	**Ford El Dorado National**	**1FDXE45S7YHA18098**	**Unleaded**	**Own**	**20**	**2010**	**Yes**

Marketing Materials

McFarland Transit currently does not have an informational flyer or brochure on the service and no information is available on the internet. One of the McFarland Transit's goals in the 1994 SRTP was to develop marketing materials and one of the findings of the 2004 Triennial Performance Audit was to develop a bilingual brochure for the service.

Accomplishments

McFarland Transit strives to serve transit dependent populations like the City's seniors. Due to the small size of the city, the system can offer a personalized service to patrons.

Recent Issues

Due to a driver shortage, only one driver is currently available to drive for McFarland Transit. The driver has other responsibilities as well, and at times, transit service does not operate. McFarland, like other cities in the area, is having trouble recruiting, training, and retaining drivers for the service. In addition, the transit vehicles are getting old and are prone to problems. City staffs are in need of assistance to purchase new vehicles and would like assistance with funding applications.

OTHER SERVICES

KERN REGIONAL TRANSIT (KRT)

KRT provides intercity fixed route bus service throughout Kern County on 12 routes, as well as local dial-a-ride services in many communities. Two intercity routes provide service to the study area: the North Kern Express and the Lost Hills route.

NORTH KERN EXPRESS

The North Kern Express provides daily service between Golden Empire Transit's (GET) Downtown Transit Center in Bakersfield and Ranch Market in Delano, with scheduled stops in Shafter, Wasco, and McFarland. Bus stops are located in Shafter at City Hall, Wasco at the Amtrak Station, and McFarland at the Community Building. Stops are made at WESTEC in Shafter by request. Six northbound and seven southbound trips are offered on weekdays and three roundtrips on weekends.

Fares for the North Kern Express are $1.50 for the base fare and an additional $0.50 for each city through which the vehicle travels beyond the boarding location. No discount fares are offered on the North Kern Express.

Medical trip riders can transfer to the Regional Transit Medical dial-a-ride in Bakersfield.
Medical trips require at least one day advance reservation. The service is free to transfer to and from the North Kern Express.

TABLE III-9 NORTH KERN EXPRESS FARES

Regular Fare	Delano	McFarland	Wasco	Shafter	Bakersfield
Delano	---	$ 1.50	$ 2.00	$ 2.50	$ 3.00
McFarland	$ 1.50	---	$ 1.50	$ 2.00	$ 2.50
Wasco	$ 2.00	$ 1.50	---	$ 1.50	$ 2.00
Shafter	$ 2.50	$ 2.00	$ 1.50	---	$ 1.50
Bakersfield	$ 3.00	$ 2.50	$ 2.00	$ 1.50	---

*No discounted fare available on North Kern Express

MCFARLAND TRANSIT

The City of McFarland operates a general public Dial-A-Ride transit system within the city limits. It operates Monday through Friday from 7:30 A.M. to 4:00 P.M with no weekend service. Rides are scheduled by any number of City staff, and radio dispatched to the driver. No advanced scheduling is permitted. There is no fixed route at this time. Per City staff 90% of the people that use the Bus live on the East Side. Current calls are: to the Palace Market, School Students to school, Doctors and Dentists appointments, and City Hall. Ridership averages 1300 to 1500 per month. See the McFarland Transit Operation Data for the last 5 years on Tables 11, 12 and 13 in Appendix F. There is one full time driver and one part time driver. The City has two buses both ADA-accessible with only one in operation at this time. The fare for adults is: $1.00 and $0.50 for children and seniors (Children 4 to 18 and Seniors 62 and older). Bus passes cost $9 for 20 tickets and adults have to pay 2 tickets. No Brochures are available to the public. Marketing is by word of mouth and numbers on the bus to call for a ride.

The Kern Council of Governments met with stakeholders. See highlights of the survey and key issues from the stakeholders in the Appendix.

NORTH KERN EXPRESS

The City is supported by a regional transit North Kern Express which also has destinations of Delano, Wasco, Shafter, and Bakersfield. It runs 6 trips northbound and southbound Monday through Friday and 3 trips northbound and southbound Saturday and Sunday. The terminal is the McFarland Community Building at 107 W. Sherwood Avenue which is right next to McDonalds.

The WKTD Plan also suggests another terminal in McFarland be added along 1st at approximately West Kern Street. A large number of residents live on the east side of State Highway 99 and walk over a long pedestrian bridge to access the stores and community/medical facilities on the west side of the freeway. This second bus stop would allow easier access to the North Kern Express for people who use the bridge and for residents who live in the north central part of the city. It would also eliminate the need for some residents to rely on McFarland Transit to make the connection to North Kern Express.
Taxi service is also available from Delano.

GREYHOUND

Greyhound is a private regional and national bus service. Greyhound currently does not provide service to McFarland. The nearest Greyhound stops are located in Delano and Bakersfield and provide service north to Fresno and south to Los Angeles. Seven northbound and southbound trips are scheduled daily from Delano. Greyhound stations can be accessed from North Kern Express.

AMTRAK (Caltrans)

Amtrak provides regional and national passenger rail service. Amtrak's San Joaquin Route travels between Bakersfield and Oakland and Bakersfield and Sacramento, via Fresno, Modesto, and Stockton. Thruway bus connections are possible to many cities in the state, including Los Angeles, San Francisco and Sacramento when not a direct train connection. Six northbound and southbound trains operate daily. Amtrak runs on the Burlington Northern and Santa Fe line (BNSF). Amtrak has a terminal in Wasco which is also the North Kern Express terminal. The North Kern Express connections with Amtrak work 7 days a week. The distance between McFarland and Wasco is approximately 13 miles so other means of transportation are possible.

BURLINGTON NORTHERN AND UNION PACIFIC RAILROADS

Freight can be delivered to or received at Burlington Northern Terminals in Wasco and a number of close locations. Union Pacific has close terminals as well but also has Intermodal Shipping (door to door service).

TRUCK ROUTES

Trucking will continue to be the major mode for the movement of agriculture and other goods into and out of McFarland. Truck Routes will be the same as the existing 2011McFarland Circulation Element with the exception of adding Garzoli on the west and Taylor on the south sides of the City. See Figure TR1 in Appendix D. The Kern County Circulation Element under 2.4.8 Delano – McFarland Area Policy 4 states that "Other studies should look into building wider road shoulders to store stopped vehicles away from moving traffic". These are some of the uncompleted truck routes. The City should work with the County of Kern to see that these streets are widened.

BICYCLE AND PEDESTRIAN ROUTES

The city of McFarland has lacked a comprehensive bicycle plan in the past. Although bicycle traffic comprises a small percentage of the overall traffic in the City, it is anticipated that bicycle travel will grow as population and employment increase in McFarland. Bicycle routes could encourage people to use this alternative form of transportation and provide recreation for the City's residents. This will be by dedicated bicycle lanes (class II) and bicycle routes (class III) which consists of the bicyclist sharing the travel lanes with motorized vehicles mostly on signed residential streets. The bicycle path (class I) will be in the future. See Figure CBL that shows the separate classes.

See figure BCP1 for the bicycle circulation plan and figure BCP2 which relies less on one way streets. This Circulation Element includes an objective and four policies committed to establishing bicycle and trail amenities within the future City of McFarland.

Because of the size of the City walking and bicycle riding are good means of Transportation in the City of McFarland. The local students walk the most. The four overcrossings are the only access across Highway 99. These are not handicap accessible. See Figure PCP for the Pedestrian Circulation Plan. Where sidewalk does not exist, the proposed and future pedestrian routes should be at least six feet wide.

SAFE ROUTES TO SCHOOL SIDEWALK IMPROVEMENTS

Safe Routes to school sidewalk improvements are proposed for Browning Road Elementary School along the south side of Perkins from San Juan to San Pedro and along with Browning, San Lucas, and San Pedro from Perkins to Kern. Some sidewalk exists on these streets so it would infill.

McFarland High School would get sidewalk on the west side of 1st from Sherwood to Kern to improve the route to the existing Kern overcrossing.

McFarland Middle School and the future elementary would get sidewalk on both sides of EBELL from Woodruff to Mast and Sherwood sidewalk would be constructed on the south from Mast to the east end of the subdivision on the north side of Sherwood approximately 700 feet west of Garzoli. Sidewalk on both sides of Woodruff would be constructed from EBELL to Sherwood and FIFTH STREET would be constructed from EBELL to KERN. This project would mostly be infill as well.

SRTS sidewalks would be constructed 6 feet wide where not existing in these locations and the 2 issues are wheelchair accessibility at the driveways and matching existing improvements at the property line. Refer to Appendix “D”, Figure SRS-1 - Safe Routes to Schools Sidewalk Improvements

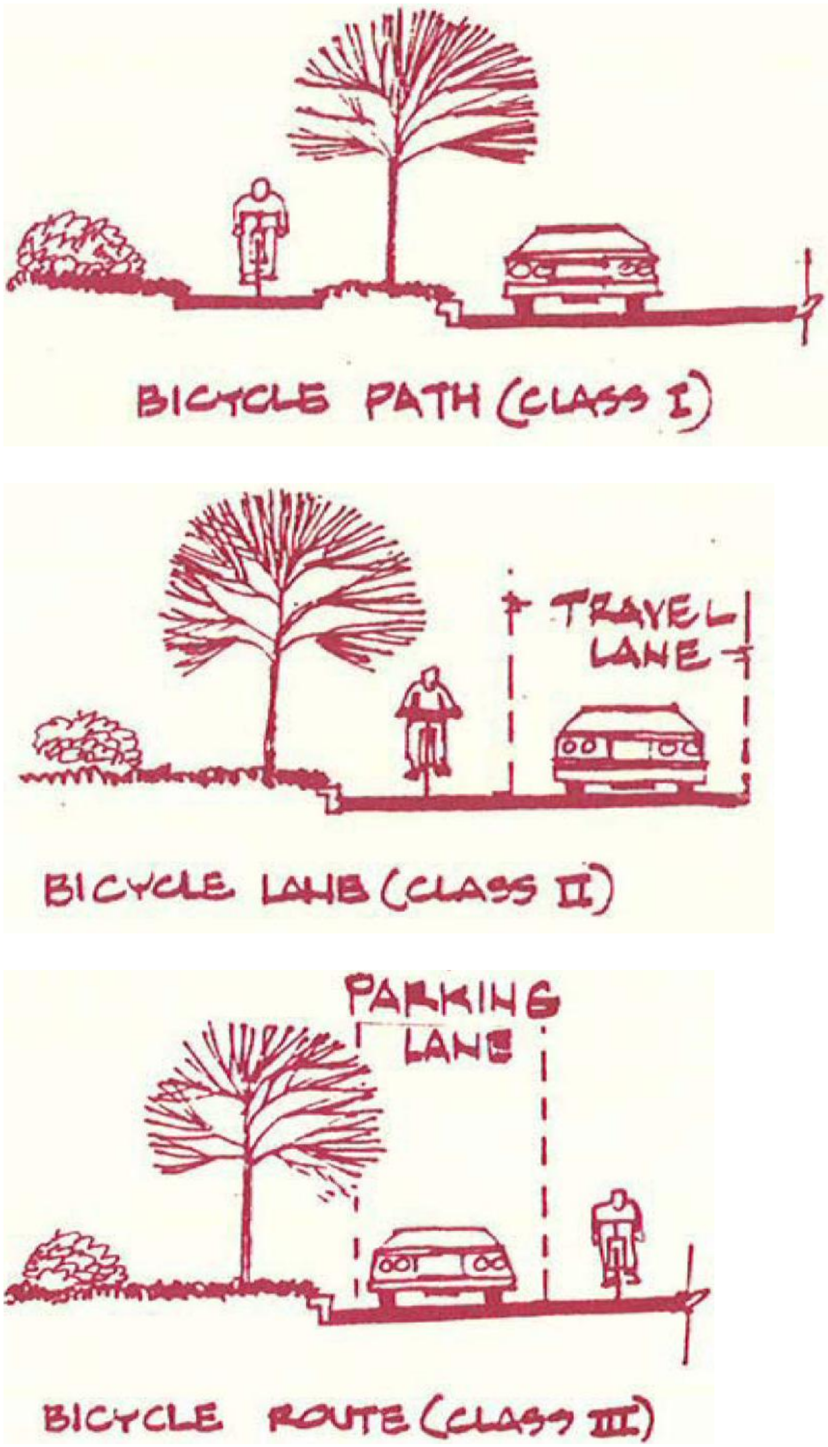


FIGURE CBL

BICYCLE PATH CROSS SECTIONS FOR CLASS I, II AND III

SECTION V

TERMINALS

GENERAL AND COMMERCIAL AIRPORTS

Located approximately four miles away, the Delano Municipal Airport is the airport nearest to McFarland The airport currently houses single engine, twin engine, and helicopter operations. There are a number of public and private hangers available, along with aircraft tie-down pads and shelters. Twenty-four hour self-service aviation fuel is available on-site. There is no commercial air service operating to and from Delano Municipal Airport. The closest passenger service is available at Meadows Field in Bakersfield, approximately 25 miles south of McFarland. Meadows Field is operated by Kern County Airport, where Commercial service is
provided. These commuter airline shuttles provide linkages to the large urban areas of Southern California and the Bay Area.

PUBLIC AND PRIVATE TRANSIT TERMINALS

The Transit Center which is a bus stop is the McFarland Community Building at 107 W. Sherwood Avenue which is right next to McDonalds. North Kern Express stops there as well as the McFarland City Dial-A-Ride McFarland School District runs buses for the students that live out of town.

FREIGHT TRUCK TERMINALS AND WAREHOUSES

Truck Warehousing and Cold Storage are in the McFarland zip code located at Driver and Highway 46 but does not have an effect on the McFarland City streets traffic.

EMERGENCY RESPONDERS

2 of the Emergency Responders are the McFarland Police Department and the Kern County Fire Department both on the west side of the City. The closest ambulance is the Delano Ambulance Service in Delano about 6.5 miles away very close to the Delano Regional Medical Center. An alternate ambulance service is Kern Ambulance Plus in Wasco 14 miles away. See the Emergency Responders Figure ER.

SECTION VI

CITY UTILITY INFRASTRUCTURE
SEWER

EXISTING SEWER SYSTEM

The City of McFarland existing sewer collection system consists of homes, businesses, schools, and detention facilities discharge. Most of the older sewer mains are in alleys and the newer mains are in public streets. The east side of the City of McFarland drains into an 8” main in Perkins. There is a pump station north of Perkins in San Juan. At Industrial and Perkins the main was enlarged to a 12” and crosses under State Highway 99. The “City of McFarland, California Proposed Sewerage System Improvements” dated 8/25/2008 state that video tapes of this Vitrified Clay Pipe show numerous cracks including under the railroad/Highway 99. The Report also states that if the VCP sewer collapses under the railroad/highway, all of the City’s sewer connections on the eastside of the City (about one third of the City’s population) would be without sewer service. This 12” main continues west in Perkins to Fifth Street where it meets an 18” trunk line which continues west approximately 2 ½ miles to the McFarland Sewer Treatment Plant. All of the early sewer mains west of State Highway 99 drain into the 12” and/or the 18” mains. A pump station in the vicinity of Hail Lane and Fifth Street connects to an 8” main in Fifth Street which connects to a 12” sewer main in Fifth Street and connects to the 18” sewer trunk main at Perkins. This was until 2002 when a 24” trunk sewer was constructed parallel to the 18” VCP for the westerly two miles (Garzoli Avenue to the Sewer Treatment Plant). At Garzoli and Perkins the 24” trunk sewer connects to a 21” trunk sewer in Garzoli that extends a ¼ of a mile north of Taylor where it connects to a 24” trunk sewer that extends to Taylor. A 12 sewer main in Taylor connects to the 24” trunk line and extends south on Mast. All of the new residential development south of Sherwood and west of Mast connects to this system. The new residential at the southeast corner of Taylor and Mast also ties into this system.

The City of McFarland Waste Water Treatment Plant is an aerated lagoon system treating wastewater that flows into the plant from the Perkins Avenue Trunk Sewer. The trunk sewer actually consists of an 18-inch diameter vitrified clay pipe constructed about 60 years ago and a newer 24-inch diameter poly vinyl chloride pipe constructed in 2000. Each sewer discharges into separate headworks structures with mechanical bar screens. The screened influent flows by gravity into a splitter structure where the wastewater is distributed equally into two parallel complete-mix aerate lagoons, Ponds 1 and 1A. Each lagoon contains mechanical aeration for mixing and oxygen transfer for optimum initial treatment. The effluent from the two lagoons is collected and discharged into a partial-mix lagoon for additional treatment, Pond 2. Some of the solids settle out in Pond 2 and need to be removed periodically. Vertical turbine pumps located in Pond 2 lift the treated wastewater to elevated, partial-mixed Pond 3 which discharges by gravity to the storage ponds. The water is used to irrigate crops.

The treatment capacity of the complete-mix and partial-mix system as describe is 1.55 million gallons a day. However, due to limited treated wastewater storage and disposal area, the permitted capacity of the Waste Water Treatment Plant is currently only 1.1 million gallons a day. Currently, the treated wastewater is stored and disposed of as irrigation water on 300 acres of land upon which the City owns. The City leases the land to a farmer. The lessee irrigates approximately 35 acres of alfalfa, 80 acres of wheat, and 160 acres of grapes with the treated wastewater.

WASTEWATER MASTER PLAN ADOPTED APRIL 2006

Wastewater improvements required for new development are the largest impediment to expansion of the City of McFarland. The City's Treatment Plant is very close to capacity. The areas most likely to be expanded are the Northeast east of Highway 99, the Southwest west of Highway 99 and the Southeast east of Highway 99. These areas will require new trunk sewer mains.

The City's Wastewater Master Plan covered and area bounded by Whistler, Driver, Peterson and Melcher. The contours of this Study Area slope from southeast to northwest. The Wastewater Master Plan states that the new Wastewater Treatment Plant would likely be constructed at some location north and/or west of the intersection of Peterson Road and Melcher Avenue. All of the wastewater from the Study Area could drain to this intersection by gravity. The Wastewater Master Plan shows 4 major trunk sewers (Industrial, Garzoli, Stradley, and Melcher) draining to the Peterson Trunk Line. The two lift stations (Hail Lane and San

Juan) that exist now would be diverted to Garzoli Trunk Sewer and Industrial respectively. As long as the existing Wastewater Treatment Plant remains at Perkins and Melcher, a large force main would be required to transfer the sewer wastewater from Peterson and Melcher to Perkins and Melcher (1.5 miles).

According to the City's Wastewater Master Plan at full buildout of the Study Area, the City's population could approach 200,000 people. Phasing would be as the major trunk lines are constructed. The Master Plan does show phasing for the Wastewater Treatment Plant. It states that the existing Sewer Treatment Plant can be increased to 6 million gallons a day. In Phase I, the plant's capacity could be increased to 3 million gallons a day. This would depend on the population of McFarland but would take approximately 20 years to reach capacity.

Wastewater Treatment Plant improvements would include Pond 1 being converted to an extended aeration activated sludge bioreactor through the addition of diffused-air aeration equipment and a secondary clarifier constructed in the downstream end of the pond. Doing this would increase the capacity of Pond 1 to 3 million gallons a day. As part of the plant expansion, the headworks and screening capacities will need to be increased also. A new lift station would receive treated effluent from the proposed clarifiers and pump water from Pond 2 to Pond 3 so that the existing storage and disposal system would continue to be utilized. Any additional flows that would not be applied to the existing crops would be pumped via a new pipeline from the new lift station. Appurtenant equipment required to operate the extended aeration plant include mechanical blowers and a centrifuge for sludge dewatering. Pond 2 would be cleaned out and utilized for sludge cake storage. Upgrades to the existing electrical service, blower building and control building would be included, with the addition of remote monitoring and control equipment for ease of operation.

Disposal of treated effluent at the existing Wastewater Treatment Plant is accomplished by using the effluent as an irrigation water supply. It is assumed that this practice will continue for the indefinite future. Currently, as noted earlier, the land area available for effluent disposal limits the permitted capacity of the Wastewater Treatment Plant to 1.1 Million Gallons per day (approximately the current daily wastewater flowrate).

Therefore, it will be necessary to increase the land area for effluent disposal. Allowing land area for effluent storage ponds, roads, etc., about 320 acres (one-half of a section of land) is needed for each 1 Million Gallons per day of effluent. For 3 Million Gallons per day, an additional 640 acres (1 section) needs to be purchased by the City. In addition to land purchase, storage ponds will need to be built as will pipelines, pump stations, etc. to distribute the effluent over the disposal area.

WASTEWATER ALTERNATE MASTER PLAN AUGUST 2008

A plan was developed by Boyle Engineering "City of McFarland, California Proposed Sewerage System Improvements" dated 8/25/08. This plan assumed that the McFarland Treatment Plant will not be moved for some years. Based on this two sewer trunk lines (Elmo Sewer and Taylor-Sherwood Sewer) could be constructed in a more direct route towards the McFarland Treatment Plant and save on upfront costs.

The **Elmo Sewer** would provide sewer service to the north end of the City including lands east of the highway/railroad. The alignment is described as follows:

a) Beginning at the Sewer Treatment Plant at the intersection of Perkins and Melcher, north one-half mile along Melcher Avenue from Perkins Avenue to Elmo Highway; and,
b) East three miles along Elmo Highway, passing under Highway 99 and the railroad to Browning Road.

At Browning Road, a sewer would extend south about one-half mile to Perkins Avenue. At Perkins, a sewer would extend west about 1000 feet to Industrial Street to connect to the existing 12" vitrified clay pipe sewer just upstream of where the sewer passes under the railroad and the highway. This sewer is proposed for two reasons:

a) Allow the damaged 12" sewer passing under the railroad and Highway 99 to be abandoned thereby increasing the reliability of sewer service to the residents east of Highway 99; and,
b) Allow the existing 30 year old sewage lift station at the intersection of San Juan and Perkins to be abandoned thereby increasing the reliability of sewer service and relieve the City of the nuisance and expense of maintaining the deteriorating San Juan lift station.

c) It is also proposed to construct about one-quarter mile of sewer in Garzoli from Elmo to Hail Lane and thence easterly, in Hail, for about one-quarter mile to an approximately 30 year old sewage lift station. The proposed sewer would intercept the sewage upstream of the lift station and divert it to the Elmo Sewer by gravity. The lift station, which is deteriorating, would be abandoned. This would increase the reliability of service and relive the City of the cost of operating and maintaining the lift station.

As shown on Figure PTS-Proposed Trunk Sewers, additional sewers would be constructed from the Elmo and Browning sewers to serve new developments as needed.

The **Taylor/Sherwood Sewer** would serve the south end of the City including lands east of the highway/railroad. The alignment would be as follows:

a) Beginning at the Sewer Treatment Plant at Perkins and Melcher, south one-half mile along Melcher Avenue to Sherwood Avenue;
b) East one mile along Sherwood Avenue to Stradley Avenue;
c) South one-half mile along Stradley Avenue to Taylor Avenue;
d) East two miles, passing under Highway 99 and the railroad to Browning Road.

At some point in the future, a trunk sewer in Peterson Road might be needed to provide service to developments between Elmo Highway and Peterson Road from Highway 99 westerly to Melcher.

As shown on Figure PTS-Proposed Trunk Sewers, additional sewers would be constructed from the Taylor/Sherwood Sewer to serve new developments as needed.

The **Sewer Treatment Plant** improvements are the same as for the 2006 Wastewater Master Plan. For the plant's capacity to be increased to 6 million gallons a day, Pond 1A would be converted to an extended aeration activated sludge bioreactor through the addition of diffused-air aeration equipment and a secondary clarifier constructed in the downstream end of the pond. Doing this would increase the capacity of Pond 1A to 3 million gallons a day. For an additional 3 Million Gallons per day of effluent disposal, an additional 960 acres (11/2 sections) needs to be purchased by the City. In addition to land purchase, storage ponds will need to be built as will pipelines, pump stations, etc. to distribute the effluent over the disposal area. This would be in addition to the improvements described for the 3 million gallons a day shown above for the 2006 Wastewater Master Plan.

WATER

The following information is taken from the "City of McFarland Master Water Study dated April 2006" by Dee Jasper & Associates, Inc.

EXISTING WATER CONDITIONS AND INFRASTRUCTURE

The city currently pumps all of its water from the aquifer that underlies the city. This aquifer is presently not overdrafted in the McFarland area due to importation of surface water supplies via the Friant-Kern Canal.

Historically the primary water quality issue in McFarland has been nitrate contamination. This problem is mainly in the shallow production zones. More recently constructed wells have been drilled deeper to avoid nitrate problems. A new concern with groundwater is arsenic. The EPA and the State of California adopted a new, lower arsenic standard in January 2006. The new standard reduced the maximum contaminant level (MCL) from 50 parts per billion (ppb) to 10 ppb. Arsenic has been found in the deeper production zones that the city relies on for its water supply. The city has two wells above or near the new MCL and these wells will require treatment to reduce the arsenic levels. DBCP has been a concern in the shallow production zones. This chemical was used for control of nematodes until it was banned in 1977. Residues of the chemical were leached into the shallow groundwater beneath lands where the chemical was used. In the McFarland area wells that rely on only the deeper production zones have been free of the chemical.

The city water system consists of four active water wells, three abandoned water wells, and a 800,000-gallon storage tank and booster pumping plant, see Table 5. Due to the ages of Wells No. 2 and 4, it is recommended that the city construct a new well to replace this capacity. The city water system consists primarily of four-inch (4") through twelve-inch (12") pipelines. City standards for new water lines require C900 and C905 PVC pipe. Sixteen-inch (16") mains must be installed along Elmo Highway and Taylor Avenue where crossing Highway 99. Twelve-inch (12") pipelines are required along section and mid-section lines. Eight-inch (8") piping is the minimum allowable pipeline size, although the city reserves the right to increase pipeline sizes upon review of development plans.

McFarland delivered about 1700 acre-feet of water to its residents in each of the past two years. This was delivered to 2141 connections. The average annual delivery was therefore about 0.80 acre-feet (260,000 gallons) per connection. Peak hour demands are developed from charts issued by the County of Kern, modified to reflect the water use patterns of the City of McFarland. The water system is analyzed to determine its capability to deliver water to all points of the system while maintaining adequate system pressures, generally between 35 and 55 psi for the peak hour demand and for delivery of 1000 gpm fire flows to hydrants while maintaining a minimum pressure of 20 psi. Additionally the water production facilities (wells and booster stations) are analyzed to determine their maximum output in order to provide the water to meet the demands that will be placed on the system. It is good design to maintain some level of standby capacity in order to meet demands when a well is off line for maintenance.

Well location affects system hydraulic conditions, especially under fire flow conditions, and this must also be considered when determining the need for production facilities.

Table 5
Existing Water Supply Sources

Facility	Capacity	Status	Treatment	Year Drilled	Age
Well No. 1	N/A	Abandoned	N/A	1952	53 yrs
Well No. 2	500 gpm	Active	Yes	1948	57 yrs
Well No. 3	N/A	Abandoned	N/A	-	N/A
Well No. 4	1200 gpm	Active	Yes	1956	49 yrs
Well No. 5	N/A	Abandoned	N/A	1982	23 yrs
Well No. 6	900 gpm	Active	No	1982	23 yrs
Garzoli Well	1800 gpm	Active	No	1996	9 yrs
Booster Station	2000 gpm	Active	No	1992	14 yrs

PROPOSED WATER INFRASTRUCTURE TO 2030

The population projection from 2005 through 2030 has been estimated and is shown in Table 6. The historic growth rate in the City of McFarland has been in the range of 4.0% however, the higher average of 5.38% has been used through 2010 due to an influx of recent developments. The city anticipated rapid growth as several developers submitted improvement plans, tract maps, and/or conceptual plans in 2004 and 2005, see the city site plan, Figure AGP-W. The historical average of 3.35% has been used for 2011 through 2030. The City of McFarland currently has 2141 water service connections. Approximately 2124 service connections are residential with 17 commercial service connections. Census 2000 data estimates 4.29 persons per household. This estimate has been used to project the water service connections through 2030, see Table 6.

Table 6
Water Connection Projections

Year	Population	Households (Water Service Connections	Annual Percent Growth (Water Service Connections
2005	11,747	2141	
2010	15,265	3558	10.70%
2015	17,999	4196	3.35%
2020	21,223	4947	3.35%
2025	25,024	5833	3.35%
2030	29,506	6878	3.35%

The city utilizes groundwater as its sole source of supply. If a surface water supply became available it could replace some of the future wells discussed herein. For purposes of this study it is assumed that new water wells will be used to meet the future demands. Further, it is assumed that wells will produce 1500 gpm and that peak hour residential demand is 2.5 gpm per lot. This equates to one new well for approximately 600 residential lots. It is anticipated that wells will be drilled in close proximity to development. However, this is not a rigid requirement as properly sized piping can convey water to remote developments even if wells are not in the immediate vicinity. The following Table 7 develops the need for new wells or booster facilities.

The reliability of the power supply is taken into account when looking at the system's emergency delivery capability. A standby electrical generator is provided for power outages and all new wells are equipped with emergency generator connections. This, together with having two electrical suppliers for the city (PG&E on the west side of Highway 99 and Southern Cal Edison on the east side) helps provide power supply redundancy for McFarland's water system.

Well location affects system hydraulic conditions, especially under fire flow conditions, and this must also be considered when determining the need for production facilities.

Hydraulic conditions for the City of McFarland water system have been evaluated using WaterCad 7.0 by Haestad Methods. New wells have been placed in the areas of anticipated growth. In addition to these areas, growth has been assumed in and around the city to reflect future needs. System operating pressures have been developed for peak demand and fire flow conditions taking into account the projected growth.

The majority of current growth is single-family residential. A twenty-acre commercial area is planned for the southeast corner of Garzoli Avenue and Elmo Highway as well as areas east of Highway 99 along Elmo Highway. The frontage along the east side of Highway 99, south of Sherwood Avenue is also planned for commercial and industrial development.

The Master Water Study states "The analysis performed herein is general in nature. This information should not be used in place of performing individual hydraulic analyses for proposed developments. The actual location of wells and piping will be dictated by actual growth patterns. The growth pattern assumed for purposes of this hydraulic analysis is illustrated in Figure AGP-W. Individual hydraulic analyses for proposed developments must be performed to evaluate the system performance with respect to those developments and fire flow requirements."

Table 8 shows a compilation of the existing and future 5 year water demand for peak domestic and capacity of existing and future wells, tanks, and booster pumps. From years 2010 to 2030 2/3 of the peak demand domestic is needed plus 1000 gpm fireflow. In later years when large commercial and/or industrial buildings are constructed 3000 gpm fireflow plus will be required. The water supplying improvements for the later years will more than satisfy this requirement.

Table 7
Projected Water Supply Requirements

Year	Population	Water Connection	New Wells or Booster Facilities
2005	11,747	2141	-*
2006	12,379	2370	-
2007	13,045	2624	-
2008	13,746	2904	1
2009	14,486	3215	-
2010	15,265	3558	1
2011	15,776	3678	-
2012	16,304	3802	-
2013	16,850	3929	1
2014	17,415	4061	-
2015	17,999	4196	-
2016	18,601	4337	-
2017	19,224	4482	1
2018	19,868	4632	-
2019	20,534	4787	-
2020	21,223	4947	1
2021	21,934	5113	-
2022	22,669	5284	-
2023	23,428	5461	-
2024	24,213	5644	1
2025	25,024	5833	-
2026	25,862	6028	-
2027	26,729	6230	1
2028	27,624	6439	-
2029	28,550	6654	-
2030	29,506	6878	1

* Includes the Tract 6373 well currently being drilled

1 A new well booster station and storage tank to be installed prior to the corresponding water connection count being reached, i.e. install a new well prior to the 2904 connection in the system.

STORM DRAIN

The City of McFarland incorporated area (1680 acres) and sphere of influence (7220 acres) generally slopes from the southeast to the northwest. Land use within the City is primarily residential with a few commercial and industrial developments. Land use in the areas surrounding the City of McFarland is primarily agricultural.

Within the City of McFarland, existing flood control for large storm flows is provided by Friant-Kern Canal levees. However, a 100 year event breaches the levees at the Friant-Kern Canal and the east side of Highway 99. The storm water flows northerly along the east side of Highway 99 almost a half of a mile wide. North of Hanawalt Avenue the storm water is mostly contained between Highway 99 and Browning Avenue. An area between Sherwood Avenue, Perkins Avenue, Browning Road, and San Pedro Street also is included in this 100 year storm. The area between Highway 99 and Browning Avenue continues up to Elmo Highway. This is shown on two FIRM maps 06029C0740E and 06029C0750E REVISED TO REFLECT LOMR EFFECTIVE DATE: December 20, 2010.

The older areas of the City of McFarland (north of Sherwood Avenue) predominately surface drain along the public streets to storm drainage ponds (sumps). The maximum distance permitted for surface drainage in developments within the City is one thousand three hundred (1300') feet by City Ordinance. Most of the curb and gutter in the streets are six (6) inches high but there is eight (8) inch high in some of the oldest areas. There are large (10 to 20 feet) valley gutters mostly at intersections that carry the storm water across the streets.

Currently, there are no storm drainage facilities (storm drainage ponds) planned within the City; however, storm water runoff concerns exist within some areas of the City. Therefore, the City requires that new developments collect and retain storm water within the developments via a storm water collection system and retention basins in accordance with the City's Improvement Standards. All costs for constructing drainage improvements are provided by the developer, except for the incremental cost of oversizing any facility for the benefit of the City beyond the immediate subdivision or parcel(s) for which the improvements are to be constructed. In addition, the developer may also be required to pay drainage fees as prescribed by the City.

SECTION VII

PARKING FACILITIES

Parking onsite and offsite in the City is adequate except for offsite at the McFarland High School. The only public parking lot in McFarland is the park and ride at the end of Perkins at the Frontage Road and it is not utilized.

AIR POLLUTION

The City of McFarland is committed to reducing motor vehicle emissions. See Goal and Policy Number 3-2.

GREEN STREETS

Detached walk shall be constructed on new construction if existing right-of-way allows and the landscape strip can be a minimum of 6 feet wide. This will support street trees for shade, save energy and separate pedestrians from traffic. Any new construction on West Kern shall comply with this to support its Parkway designation. The sidewalk shall be 6 feet wide and the landscape strip shall be 8 ½ feet.

SECTION VIII

CIRCULATION GOALS, OBJECTIVES AND POLICIES

Goal – The Goal of the McFarland Circulation Element is to:
Plan for, Create, and Maintain an Efficient, Cost Effective, Safe, and Coordinated Multi-modal Circulation System, serving the needs of a variety of users.

Objective 1
Establish a circulation system that is consistent with the planned land use patterns of the City of McFarland as presented in the Land Use Element.

Policy 1-1
Develop a network consisting of roads, pedestrian access, bicycle routes, and public transit that is compatible with the Land Use Element.

Policy 1-2
The City shall develop standards for Arterial, Collector, and Local Streets. The standards for Arterial and Collector streets maybe modified so as not to require four-lanes, but rather a two-lane configuration with a median. Arterials and Collector streets shall include bicycle lanes, sidewalks, and landscaping.

Policy 1-3
The locations of major intersections of Collector and Arterial streets shall be fixed by the Circulation Element. Roadway dedications and development design shall implement the Circulation Element.

Policy 1-4
Developers in newly developing areas shall prepare Master Plans or Specific Plans which identify future major street alignments. The City will participate in the design of street alignments in advance of development to ensure consistent and logical design of the circulation system.

Policy 1-5
The City of McFarland may pursue the reservation of right-of-way and define specific development standards and requirements through the preparation and adoption of Precise Plan Lines.

Policy 1-6
Require the dedication of rights-of-ways for streets as part of the entitlement process.

Policy 1-7
On developed streets, where the existing right-of-way does not meet the current standards, the City of McFarland will adopt and fund a program to acquire the ultimate right-of-way where practical for Arterial and Collector streets. Funding mechanisms may include but are not limited to traffic impact fees collected from new development in relationship to the circulation effects of that new development.

Policy 1-8
New development shall be required to mitigate traffic impacts associated with the project on State Route 99, Arterial Streets, Collector Streets, and local streets including traffic control devices, and bridges over State Route 99 and interchanges.

Policy 1-9
The City shall promote an active policy of consolidating driveways, access points and curb cuts along existing Arterial and Collector streets when a zone change to a greater density or intensity, division of property, or new development or a major remodeling occurs.

Policy 1-10
To help ensure that adequate and safe travel ways can be developed through existing developed areas of the City, rights-of-way standards for each classification may be modified.

Policy 1-11
In order to promote safe travel and to reduce vehicle speeds, traffic calming devices may be used. Traffic calming devices do not include the use of speed bumps.

Objective 2
Provide timely and effective means of programming and constructing street and highway improvements to maintain an overall Level of Service of "C", with a peak hour Level of Service of "D".

Policy 2-1
Transportation projects shall be prioritized with emphasis on reducing traffic congestion and improving traffic circulation.

Policy 2-2
Street improvements shall be prioritized with emphasis on current and forecasted service levels. Roadways experiencing or forecasted to experience conditions less than Level of Service "D" should receive the highest priority.

Objective 3
Achieve a coordinated regional and local transportation system.

Policy 3-1
Local circulation system improvements shall be reviewed for consistency with the Kern Council of Governments Regional Transportation Plan.

Policy 3-2
The City will work with Caltrans to identify and implement needed improvements to State Route 99, interchanges and related local intersections.

Policy 3-3
The City shall work with the local school districts to plan for drop-off and pick-up locations for school sites.

Objective 4
Promote maximum opportunities for pedestrian and bicycle traffic throughout the City of McFarland by continuing to develop and maintain a safe sidewalk and trail system that facilitates pedestrian and bicycle access.

Policy 4.1
Consistent with the Land Use Element, subdivisions shall be designed so that a pedestrian/bicycle way is provided from the subject project to adjoining property designated as residential on the General Plan not greater than every 800 feet.

Policy 4.2
Consistent with the Land Use Element, subdivisions shall be designed so that pedestrian/bicycle access from the subdivision to adjoining major streets is provided not greater than every 800 feet, including corners of the project.

Policy 4.3
Consistent with the Land Use Element, the pedestrian/bicycle access may be by way of a street or a separate pedestrian/bicycle way. If a separate pedestrian/bicycle way is used, it shall not be less than 10 feet in width. Bollards or similar devices may be installed to prevent automobile use of the pedestrian/bicycle way.

Policy 4.4
Exclusive bicycle and pedestrian access to community services, including but not limited to schools, parks, and neighborhood shopping activity centers is strongly encouraged.

Policy 4.5
Consistent with the Land Use Element, cul-de-sacs in residential development shall be discouraged except when the size, typography, or configuration of the parcel does not permit a through connection.

Policy 4.6
Consistent with the Land Use Element, local residential street lengths including intervening intersections, shall not be greater than 1,000 feet.

Policy 4.7
Residential streets shall include a sidewalk that is offset a minimum of five (5) feet from the back of curb. A street tree per single family lot shall be provided in the landscape strip.

Policy 4.8
When intersection traffic warrants are met for the installation of a traffic control device, the preferred method shall be the use of a round-about, unless a engineered traffic study shows that a round-about would not be feasible at a particular location.

Policy 4.9
Figure BCP-1 shows the location of streets hereby designated for bicycle paths/lanes.

Policy 4.10
The Zoning Ordinance shall be amended to include requirements for bicycle parking for public facilities, schools, and commercial and industrial land uses.

Policy 4.11
The City shall develop and implement through its Capital Improvement Program, an ADA Compliance Plan for sidewalks, curb cuts such as driveways, and curb returns.

Policy 4.12
The City shall develop a marketing and incentive program to promote the increase of walking and bicycling.

Objective 5
Promote and improve access to public transit opportunities.

Policy 5-1
New projects and employment centers that employ more than 20 persons shall submit an Employee Transportation Plan. Said plan shall address promoting car/van pooling and access to public transit.

Policy 5-2
Arterial and Collector street designs shall include future pull-outs for bus stops.

Policy 5-3
The City shall coordinate with regional transportation agencies and providers regarding promotion and siting of stops and schedules.

Objective 6
Pursue funding for necessary circulation system improvements.

Policy 6-1
The City shall apply for grants to improve the movement of persons and goods.

Policy 6-2
The City shall periodically review and revise the circulation impact fees assessed to new development to ensure that traffic impacts generated by development are mitigated.

Policy 6-3
The City shall explore the establishment of benefit assessment districts or similar financial mechanisms for large scale projects or areas.

Policy 6-4
The City shall actively participate in the development of the Regional Transportation Plan to ensure that projects affecting the City of McFarland are included.

Objective 7
From WKTDP-June 2007
Coordinate transit system development with community planning and development efforts, and land use policy.

Policy 7-1

Encourage new facilities that may impact local transit services to locate within the current service area.

Policy 7-2

Coordinate alternative commute programs with the private sector and other transit providers.

Objective 8
From WKTDP-June 2007
Increase the visibility, awareness and availability of information about transportation options.

Policy 8-1

Take a proactive approach to providing information about transportation services.

Policy 8-2

Focus on providing good customer service for existing and potential users.

Policy 8-3

Provide accessible outreach and public information about services.

Policy 8-4

Enhance training, assistance and outreach programs.

Policy 8-5

Offer information via telephone, the Internet, and printed materials in English and Spanish and appropriate formats.

Objective 9
From WKTDP-June 2007
Provide consistent and reliable service.

Policy 9-1

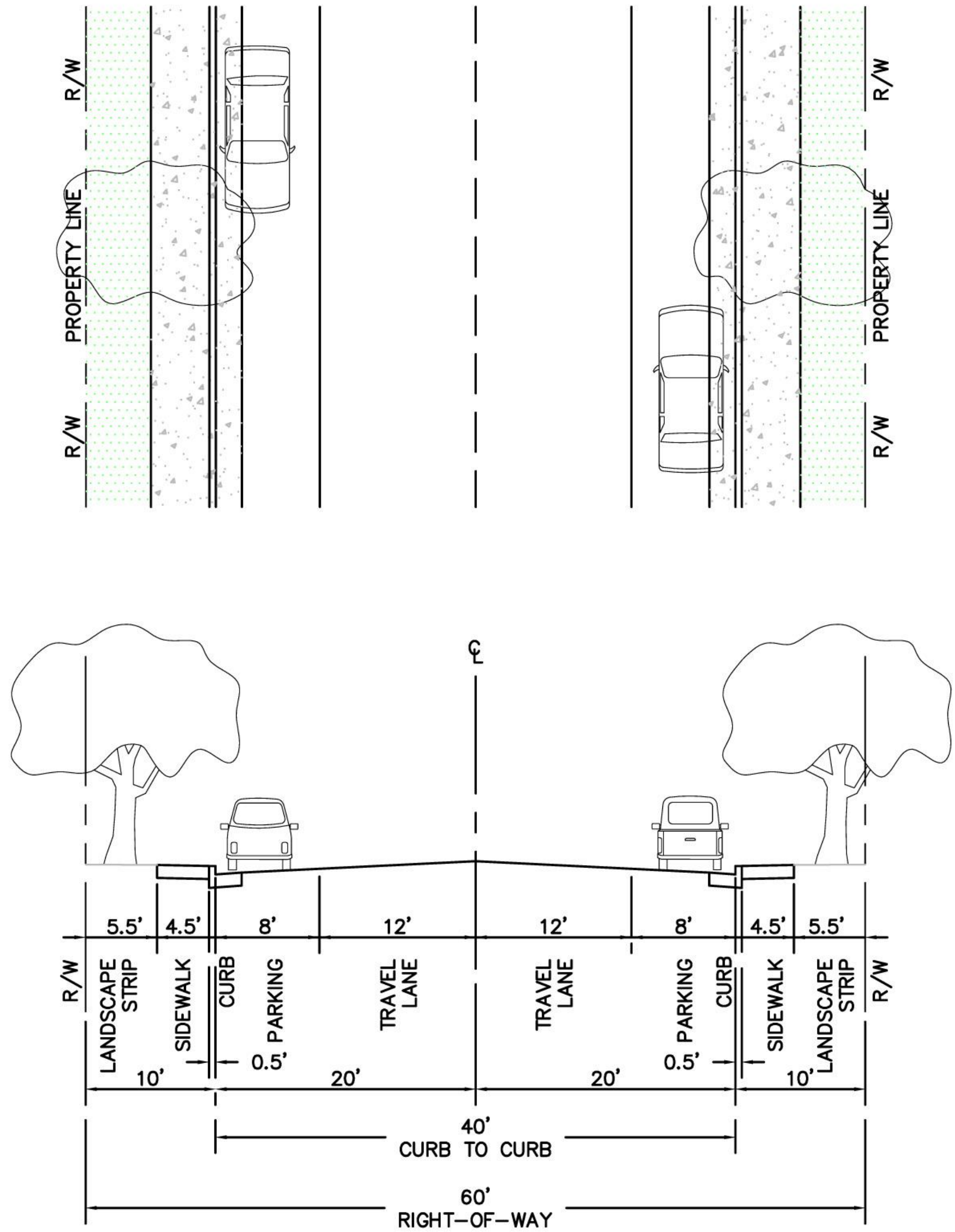
Ensure dedicated staff schedule trips and answer phones during service hours to provide consistent and reliable service.

Policy 9-2

Ensure that service is available at all times during service hours. Bus operators need to be available to drive vehicles during their shifts.

APPENDIX “A”

Existing Streets



EXISTING 60 FOOT LOCAL RESIDENTIAL STREET

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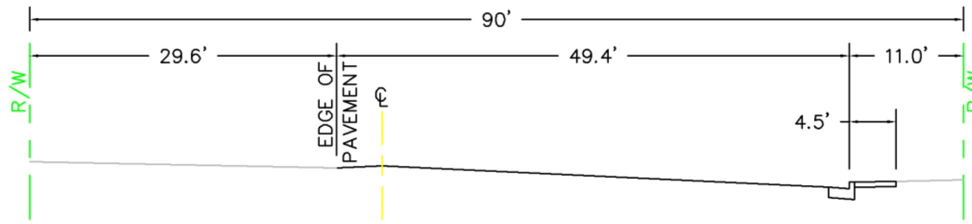
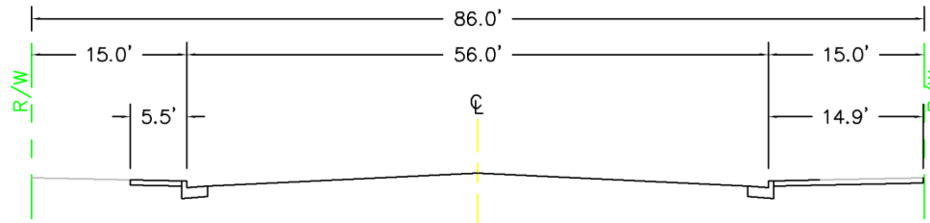
Economic and Community Development Consultants

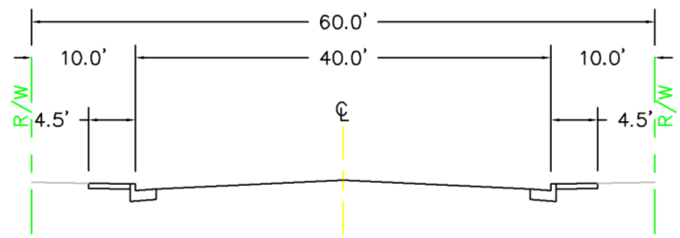
FIGURE ST-2
2011-2035 CIRCULATION ELEMENT



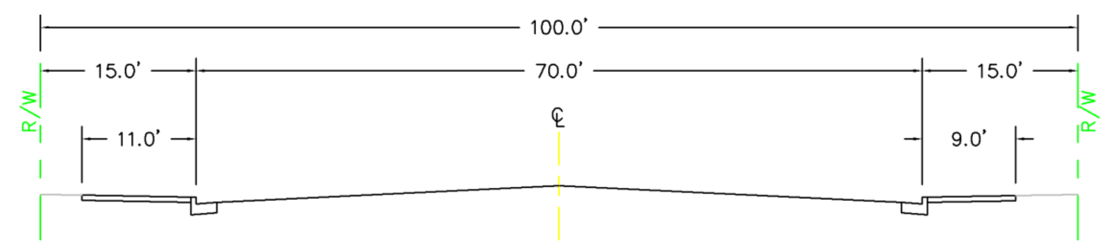
WEST PERKINS AVE
9TH ST TO 5TH ST



WEST PERKINS AVE
5TH ST TO 2ND ST



WEST KERN AVE
11TH ST TO 9TH ST



WEST KERN AVE
9TH ST TO 1ST ST

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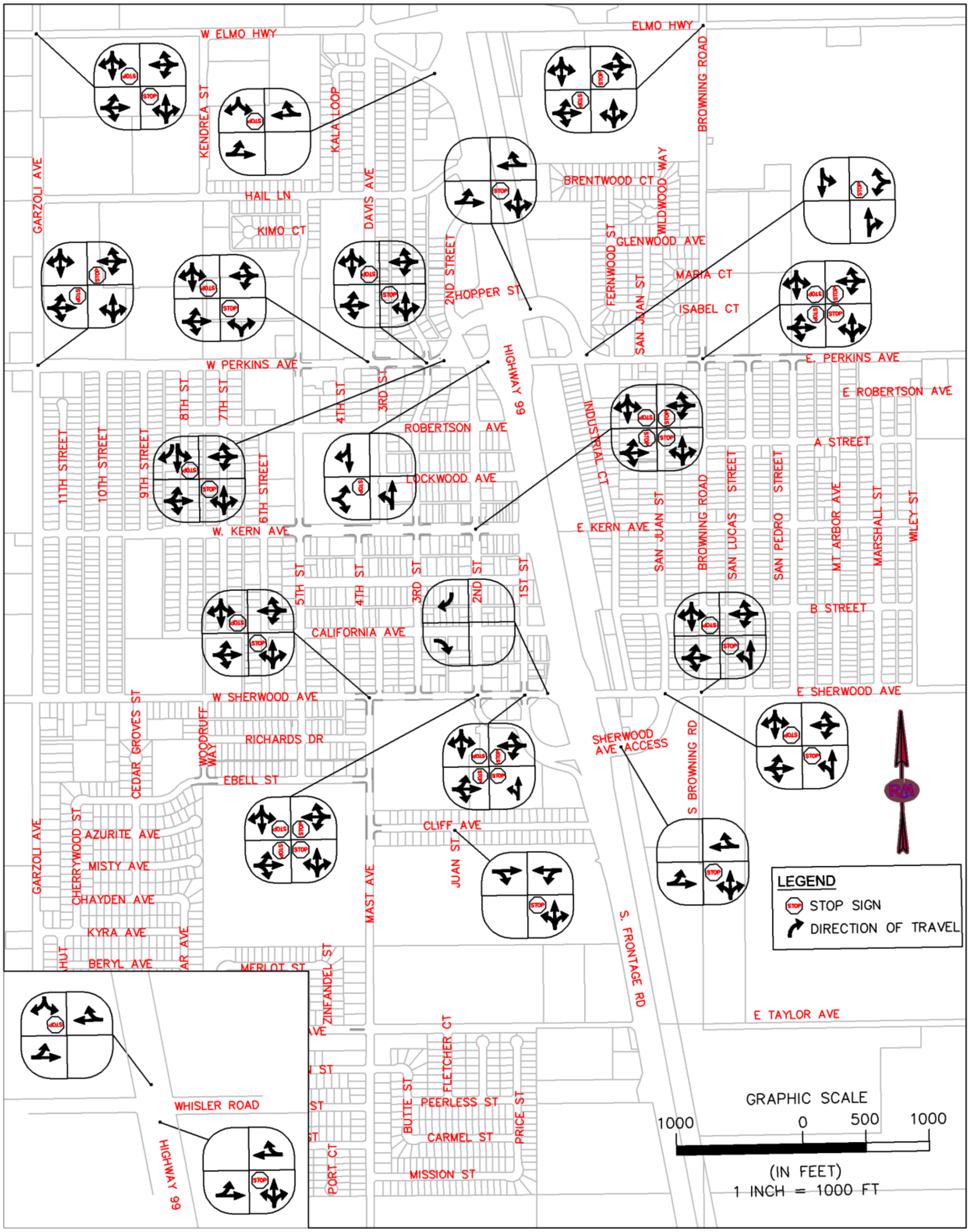
FIGURE ST-3
2011-2035 CIRCULATION ELEMENT



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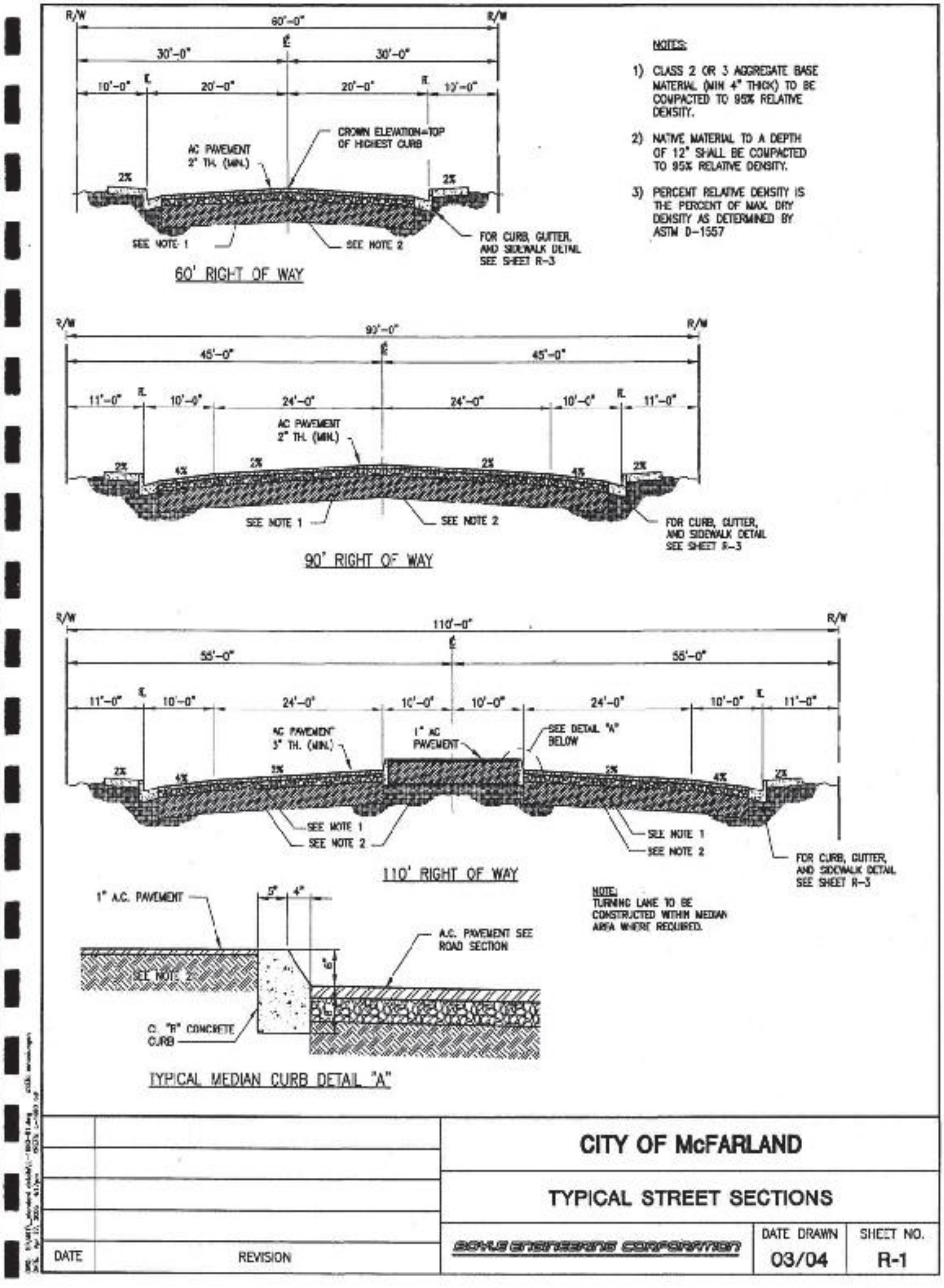
Economic and Community Development Consultants

FIGURE EILC
EXISTING INTERSECTION
LANE CONFIGURATION
2011-3231 CIRCULATION ELEMENT


R/W
60'-0"
30'-0"
10'-0"
20'-0"
CROWN ELEVATION=TOP OF HIGHEST CURB
AC PAVEMENT 2" TH. (MIN.)
2%
SEE NOTE 1
SEE NOTE 2
FOR CURB, GUTTER, AND SIDEWALK DETAIL SEE SHEET R-3
60' RIGHT OF WAY
NOTES:
1) CLASS 2 OR 3 AGGREGATE BASE MATERIAL (MIN 4" THICK) TO BE COMPACTED TO 95% RELATIVE DENSITY.
2) NATIVE MATERIAL TO A DEPTH OF 12" SHALL BE COMPACTED TO 95% RELATIVE DENSITY.
3) PERCENT RELATIVE DENSITY IS THE PERCENT OF MAX. DRY DENSITY AS DETERMINED BY ASTM D-1557
90'-0"
45'-0"
11'-0"
10'-0"
24'-0"
4%
90' RIGHT OF WAY
110'-0"
55'-0"
AC PAVEMENT 3" TH. (MIN.)
1" AC PAVEMENT
SEE DETAIL "A" BELOW
110' RIGHT OF WAY
NOTE:
TURNING LANE TO BE CONSTRUCTED WITHIN MEDIAN AREA WHERE REQUIRED.
1" A.C. PAVEMENT
A.C. PAVEMENT SEE ROAD SECTION
SEE NOTE 2
CL "B" CONCRETE CURB
TYPICAL MEDIAN CURB DETAIL "A"
CITY OF McFARLAND
TYPICAL STREET SECTIONS
DATE
REVISION
DATE DRAWN
03/04
SHEET NO.
R-1

<u>APPENDIX “B</u>

Proposed Future Streets

	RANGE OF AVERAGE DAILY TRAFFIC	SIDEWALK (FEET)	PLANTER – MEASURED TO FACE–OF–CURB (FEET)	CURB TYPE	PARKING LANE (FEET)	BIKE LANE (FEET)	TRAVEL LANES (FEET)	MEDIAN (FEET)	HALF STREET (FEET)	TOTAL RIGHT–OF–WAY DEDICATION (FEET)
LOCAL–RESIDENTIAL	0–4000	5	6 1/2	VERTICAL	7	0	8	N/A	27	54
LOCAL–COMMERCIAL	0–14000	5	6 1/2	VERTICAL	7	0	11	N/A	30	60
LOCAL–INDUSTRIAL	0–14000	5	6 1/2	VERTICAL	8	0	12	N/A	32	64
COLLECTOR MINOR– NO PARKING	4000–7000	5	6 1/2	VERTICAL	0	6	11	N/A	29	58
COLLECTOR MINOR– WITH PARKING	4000–7000	5	6 1/2	VERTICAL	7	6	11	N/A	36	72
COLLECTOR MAJOR– NO PARKING	7000–14000	5	6 1/2	VERTICAL	0	6	11	12	35	70
COLLECTOR MAJOR– WITH PARKING	7000–14000	5	6 1/2	VERTICAL	7	6	11	12	42	84
4 LANE ARTERIAL– NO PARKING	14000–27000	6	8 1/2	VERTICAL	0	6	11/12	12	50	100
4 LANE ARTERIAL– NO PARKING	14000–27000	6	8 1/2	VERTICAL	7	6	11/12	12	57	114

PROPOSED FUTURE STANDARD STREET SECTIONS

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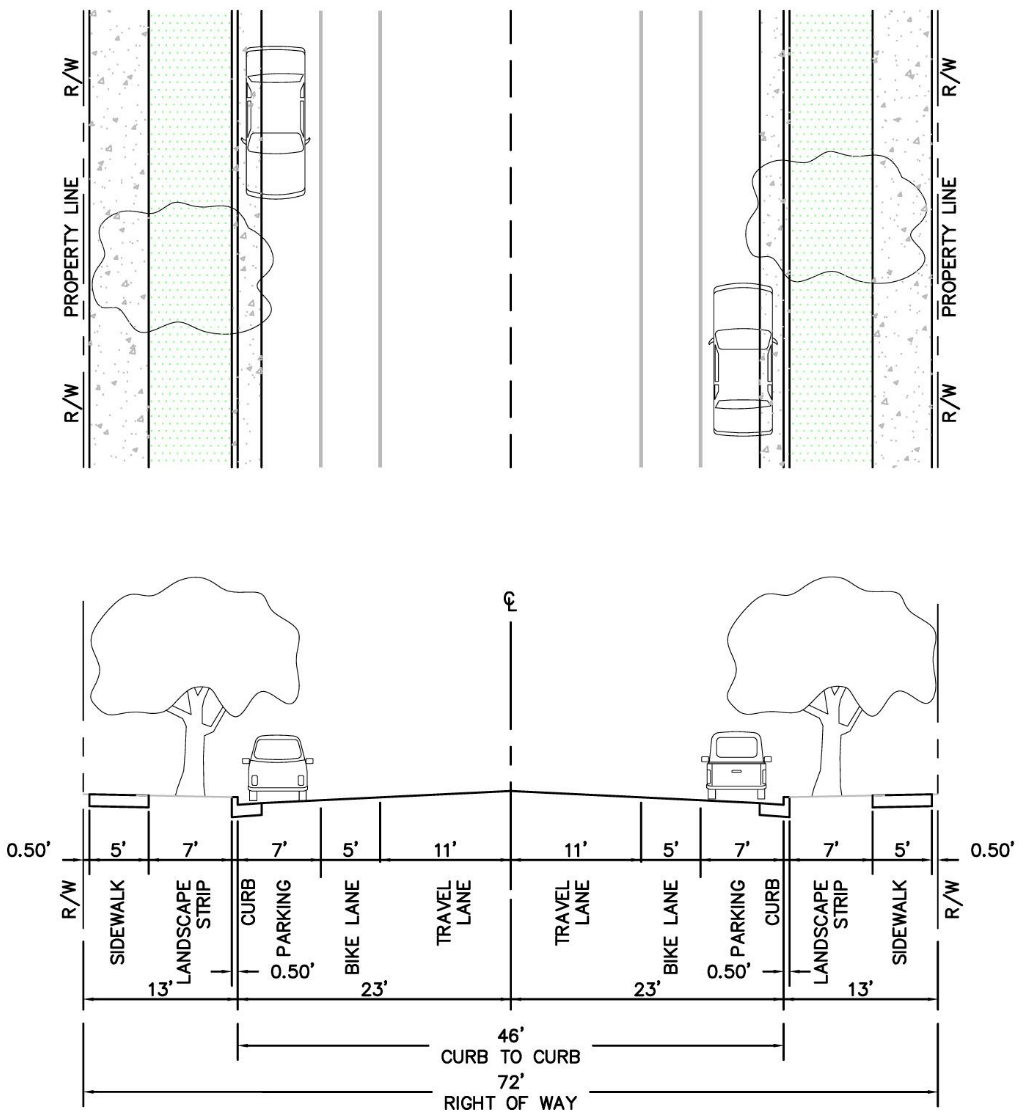
FIGURE ST-5
2011-2035 CIRCULATION ELEMENT



PROPOSED RESIDENTIAL COLLECTOR

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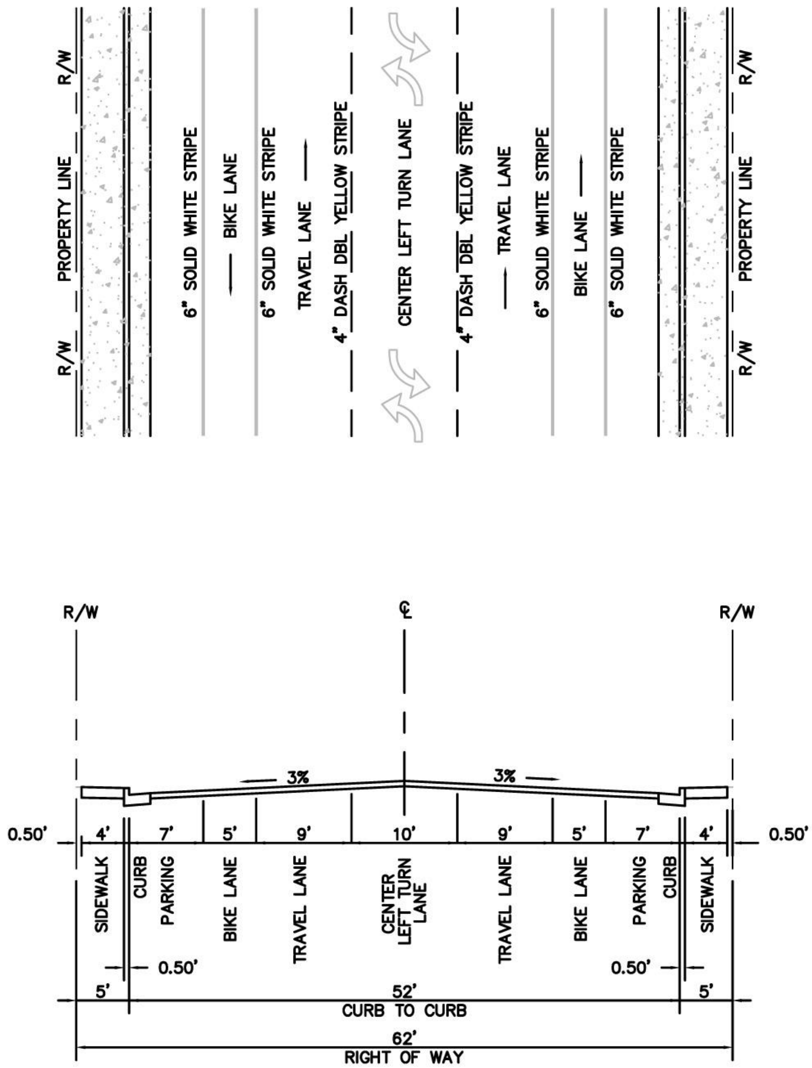
FIGURE ST-4
2011-2035 CIRCULATION ELEMENT



PROPOSED FUTURE RESTRAINT ARTERIAL/COLLECTOR STREET
ALTERNATE "A"

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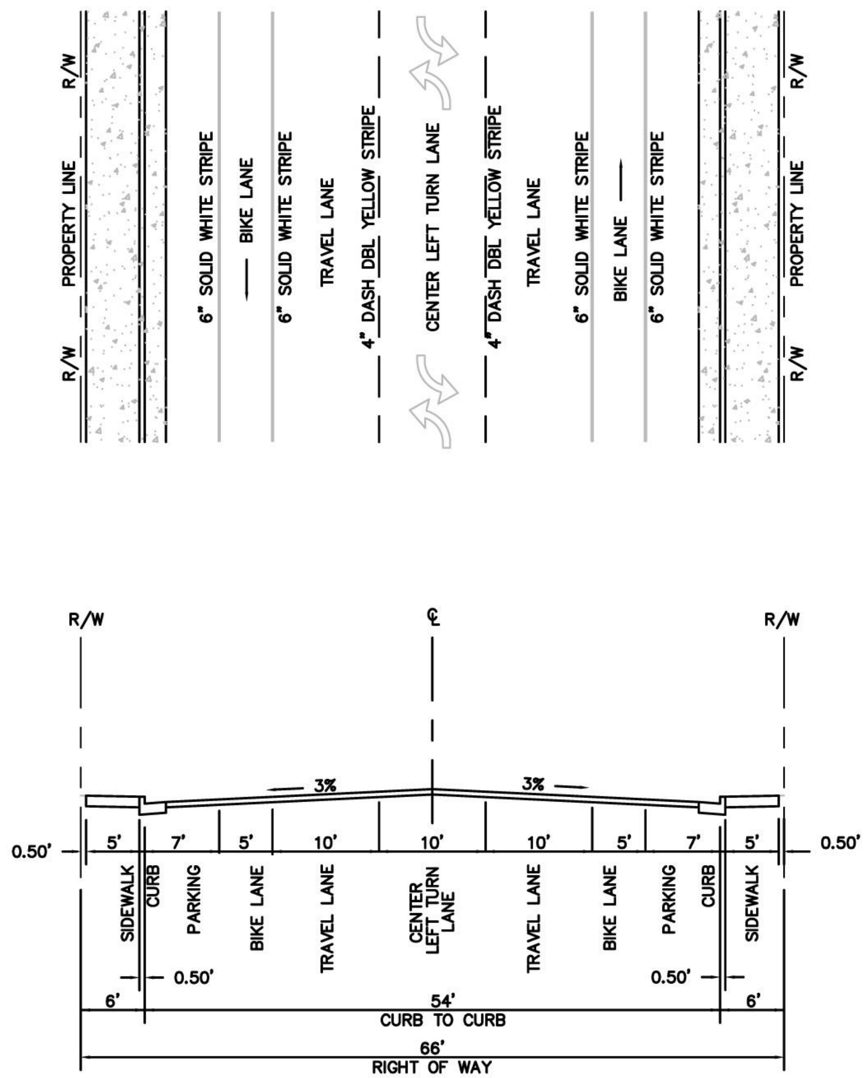
FIGURE ST-7
2011-2035 CIRCULATION ELEMENT



PROPOSED FUTURE RESTRAINT ARTERIAL/COLLECTOR STREET
ALTERNATE "B"

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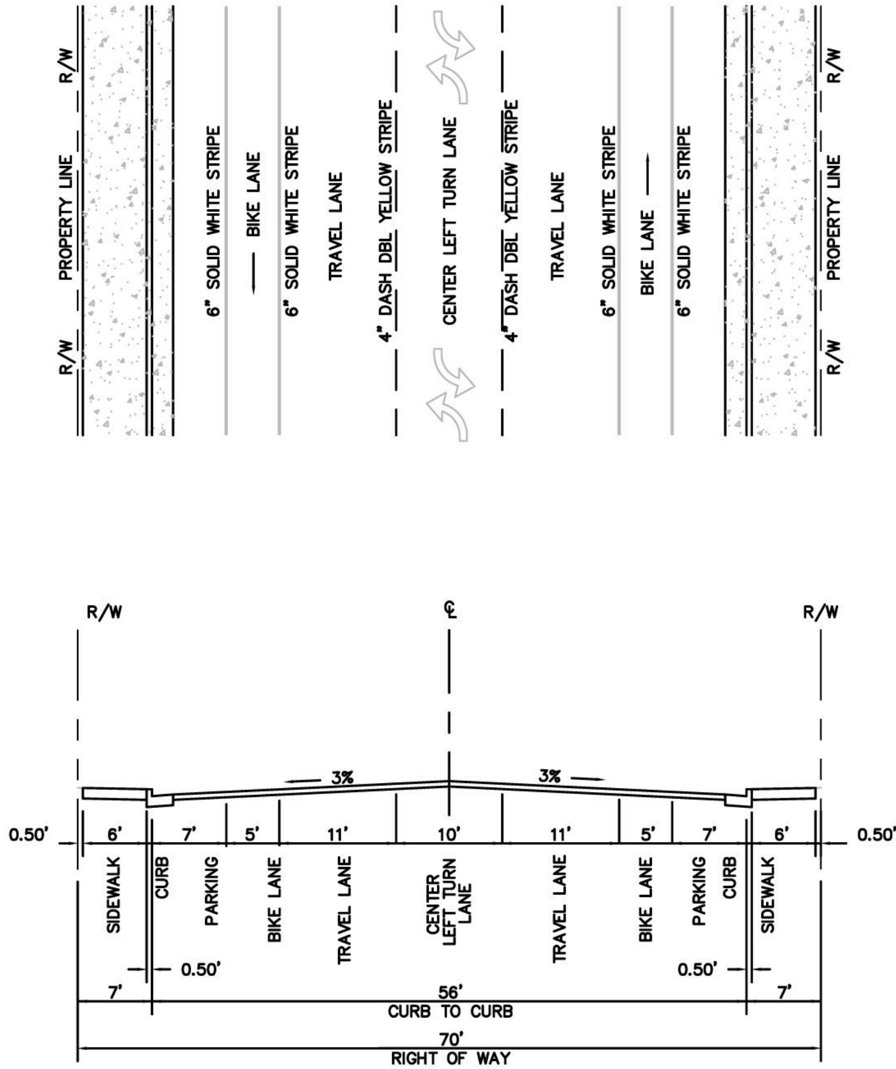
Economic and Community Development Consultants

FIGURE ST-8
2011-2035 CIRCULATION ELEMENT



PROPOSED FUTURE RESTRAINT ARTERIAL/COLLECTOR STREET

ALTERNATE "C"

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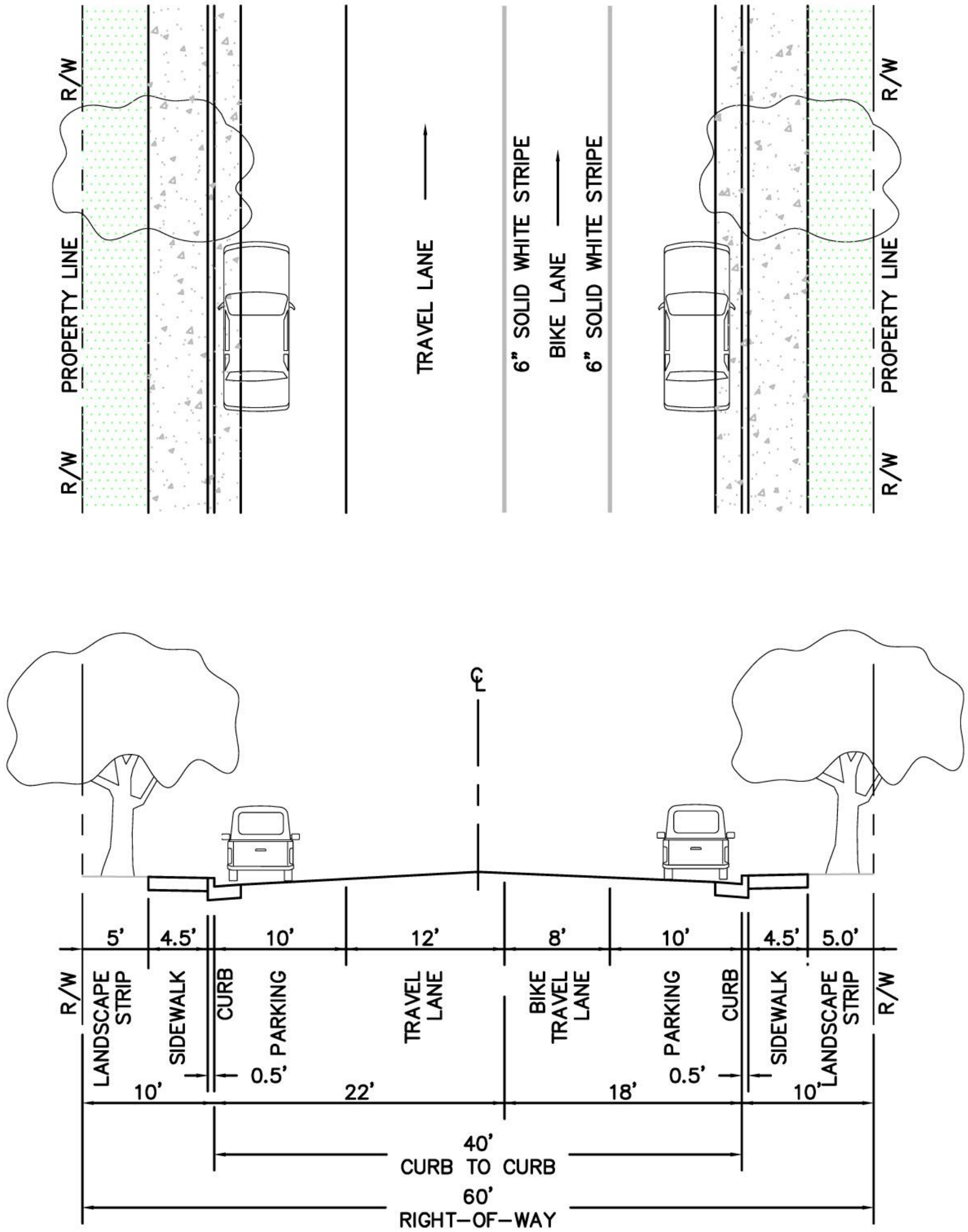
FIGURE ST-9
2011-2035 CIRCULATION ELEMENT



PROPOSED FUTURE ONE WAY STREET - ALTERNATE "A"

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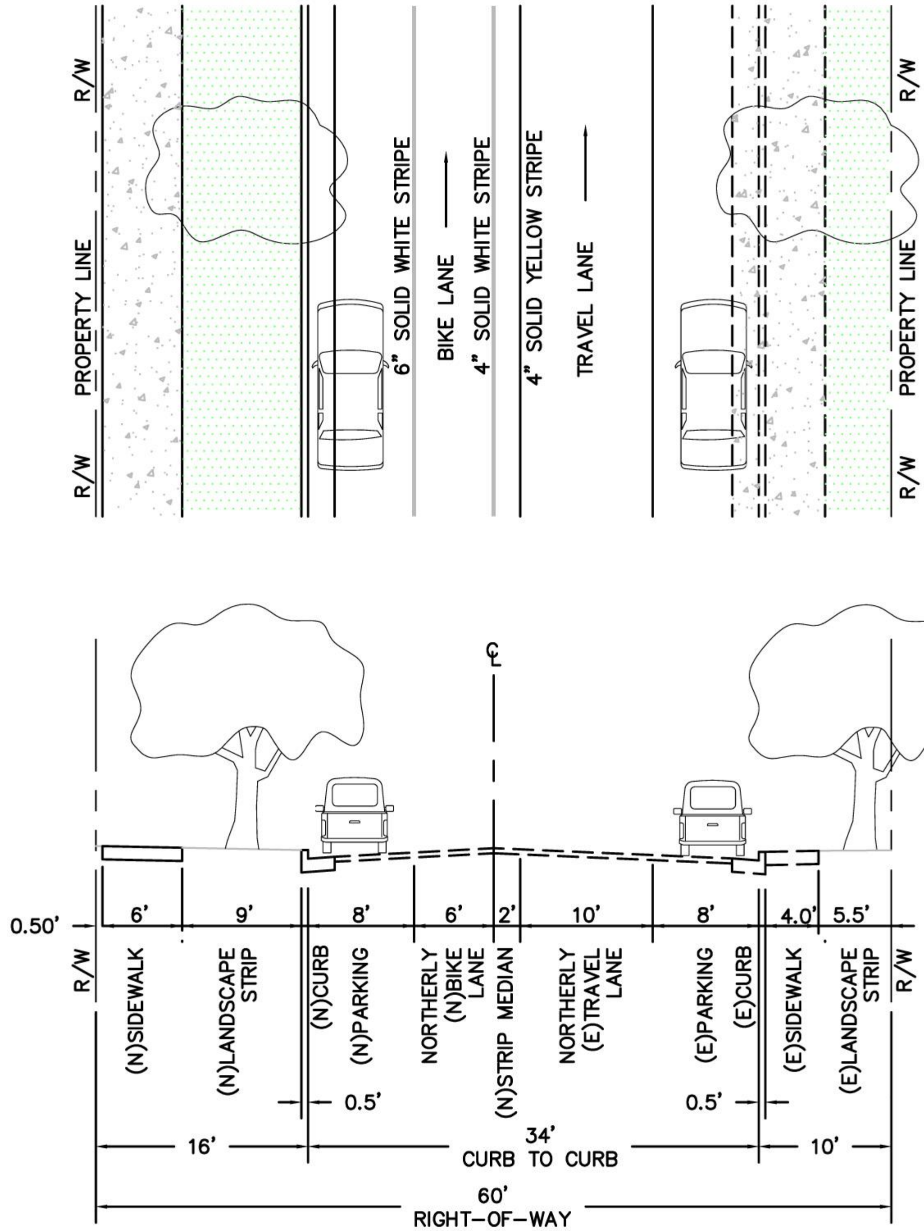
FIGURE ST-11
2011-2035 CIRCULATION ELEMENT



PROPOSED FUTURE ONE WAY STREET - ALTERNATE "B"

NORTHERLY DIRECTION – NEW IMPROVEMENTS

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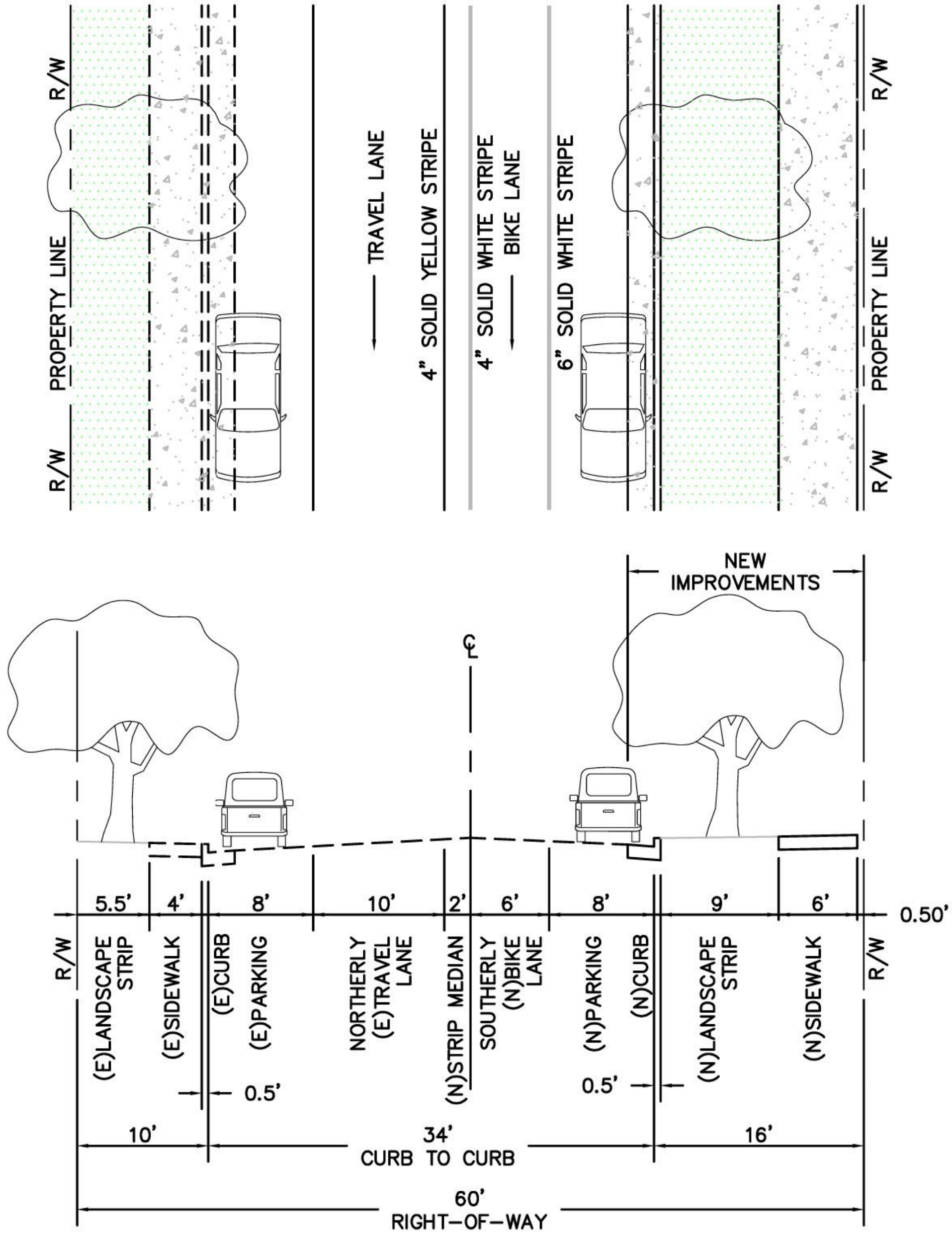
FIGURE ST-12
2011-2035 CIRCULATION ELEMENT



PROPOSED FUTURE ONE WAY STREET - ALTERNATE "C"

SOUTHERLY DIRECTION – NEW IMPROVEMENTS

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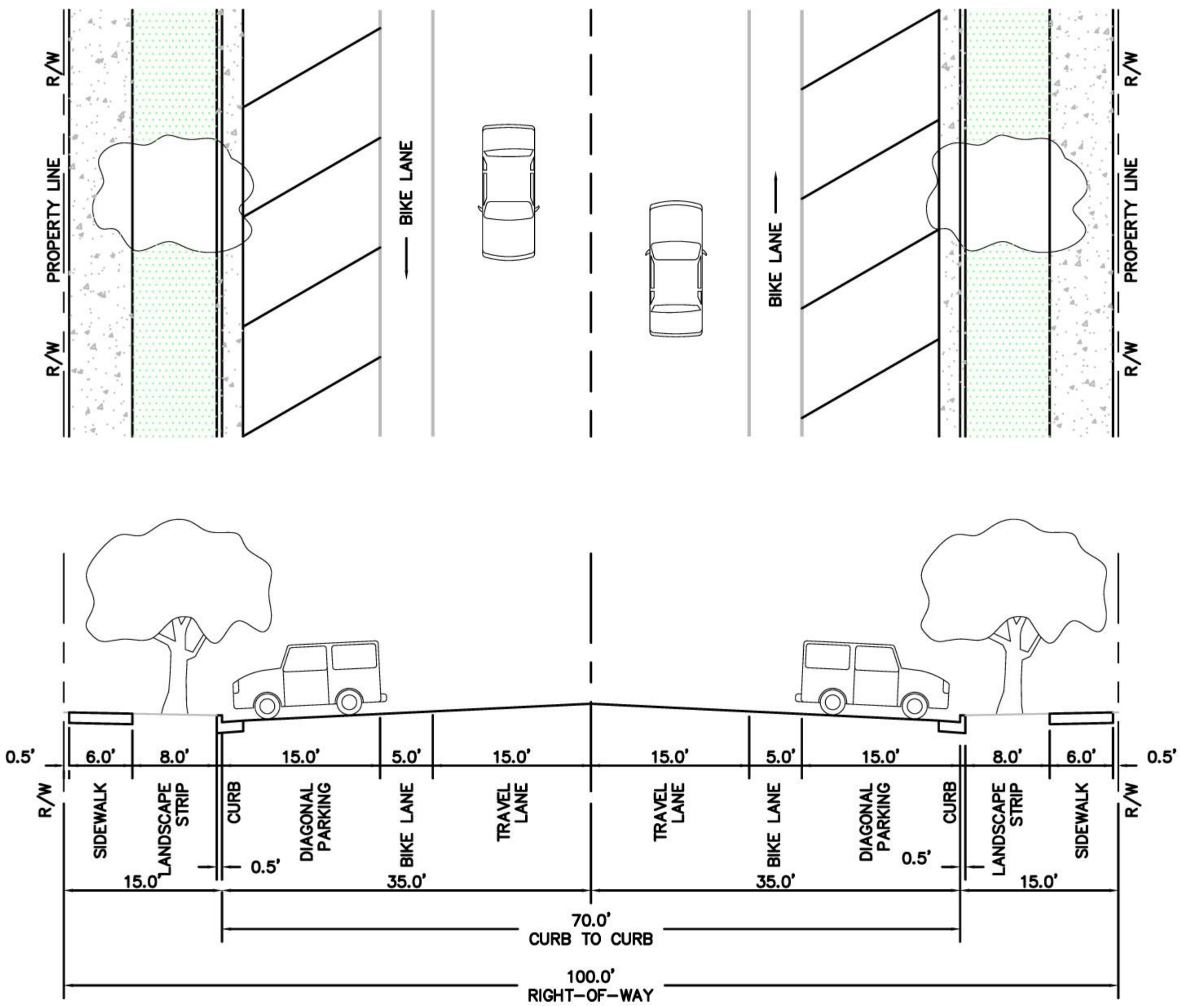
Economic and Community Development Consultants

FIGURE ST-13
2011-2035 CIRCULATION ELEMENT



PROPOSED FUTURE KERN AVENUE

RM ASSOCIATES
Civil and Environmental Engineers
Economic and Community Development Consultants

FIGURE ST-6
2011-2035 CIRCULATION ELEMENT

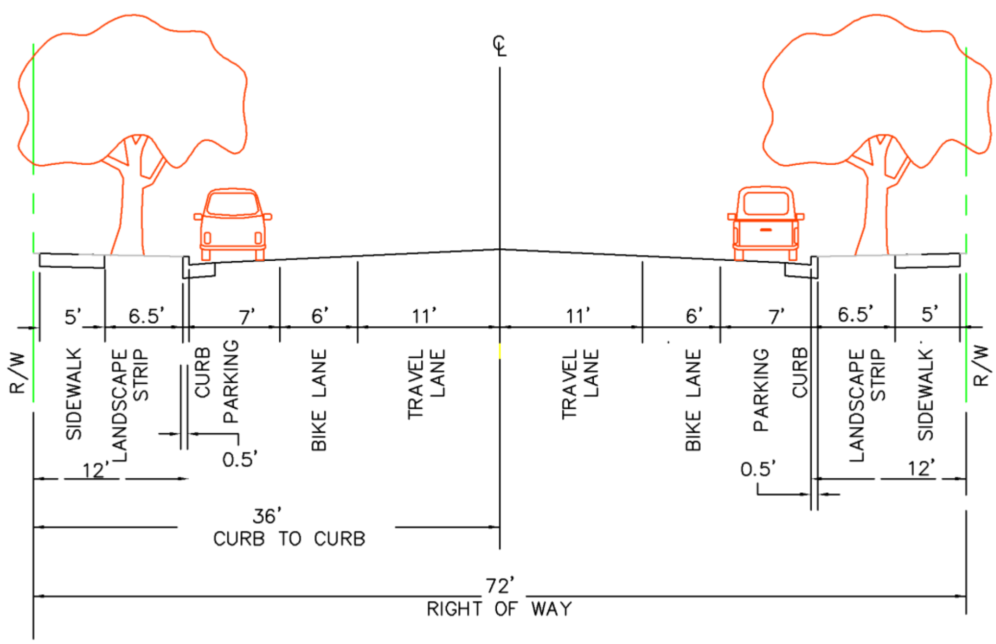


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FIGURE CMP
COLLECTOR MINOR WITH PARKING

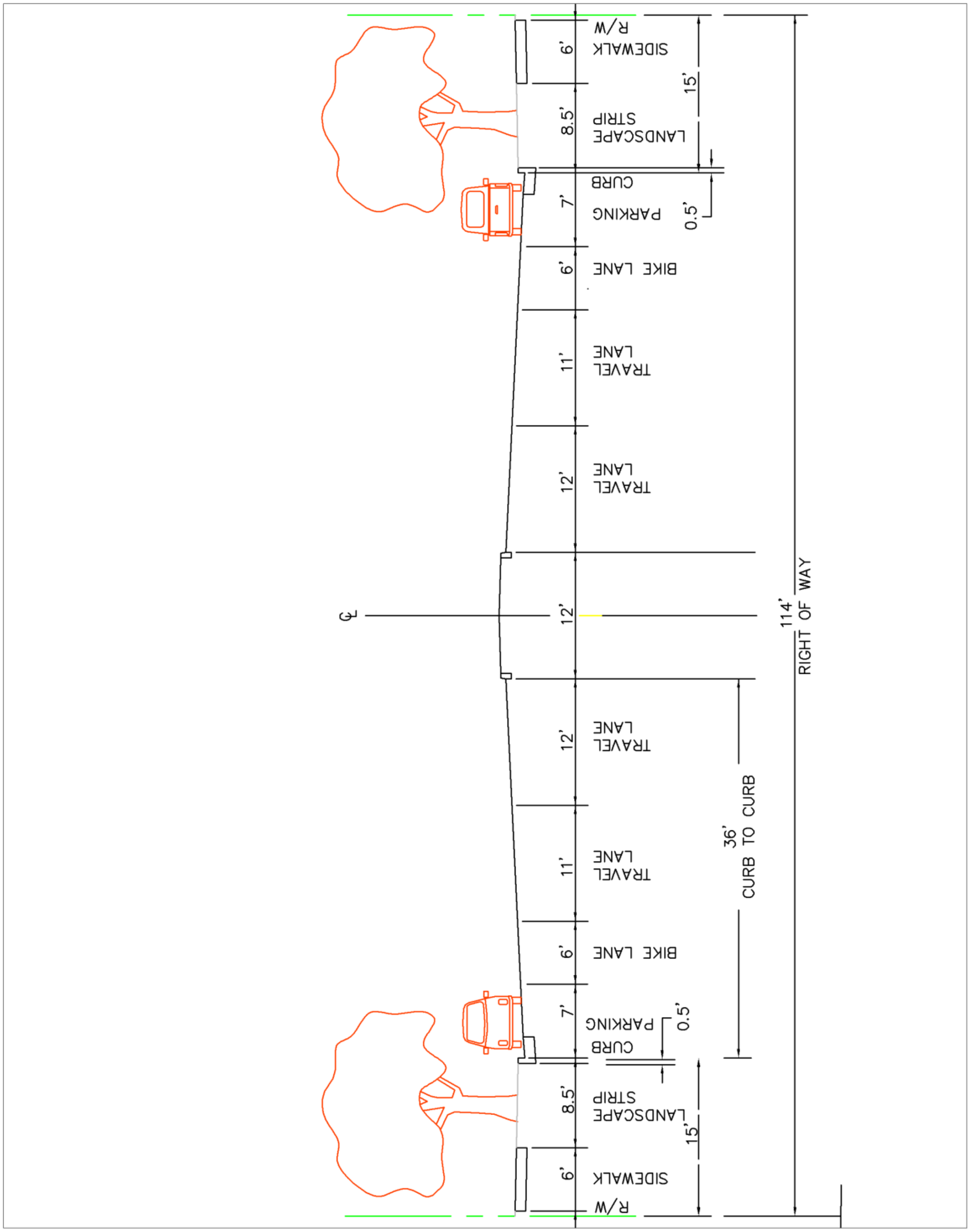

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FIGURE 4LA
4 LANE ARTERIAL

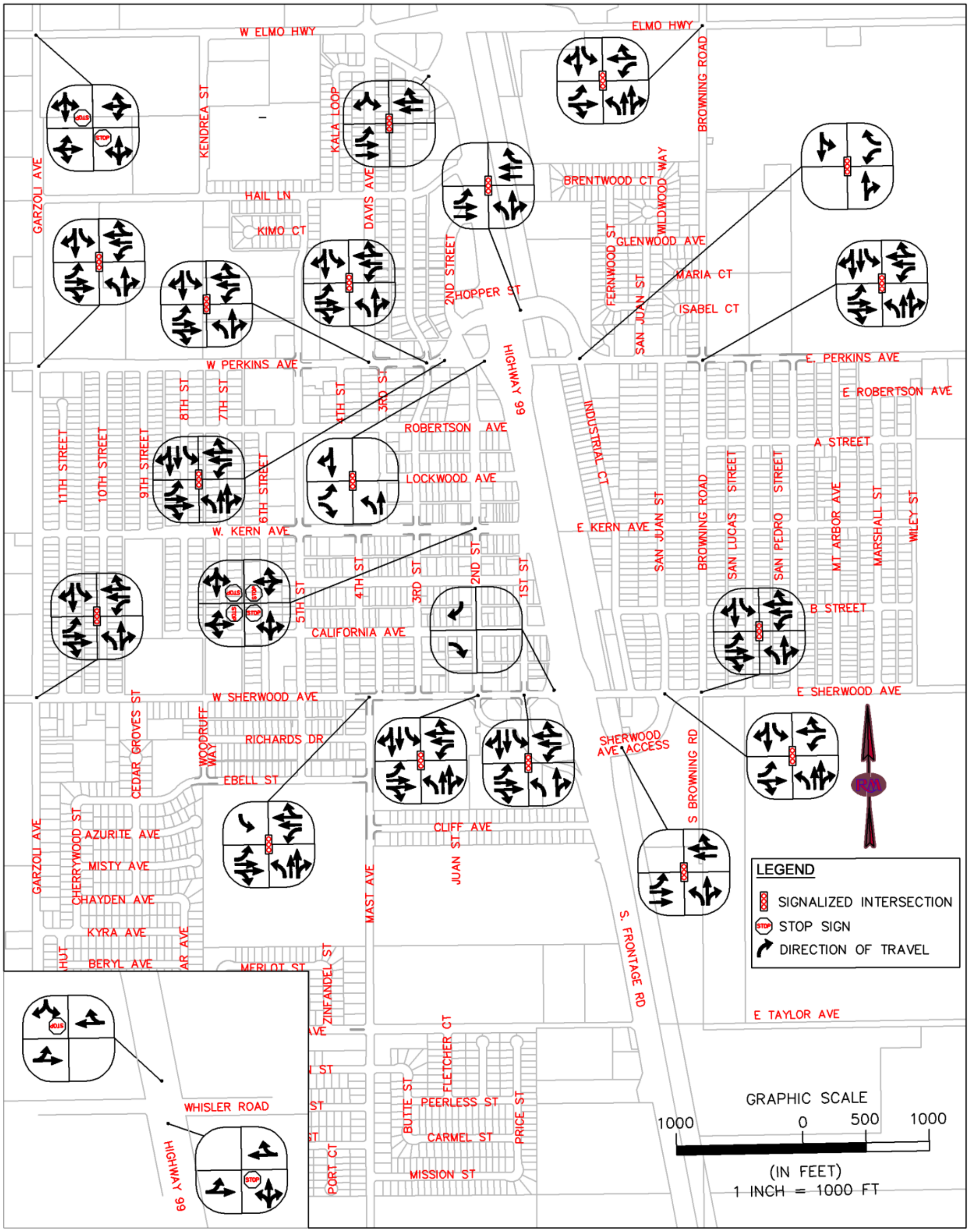

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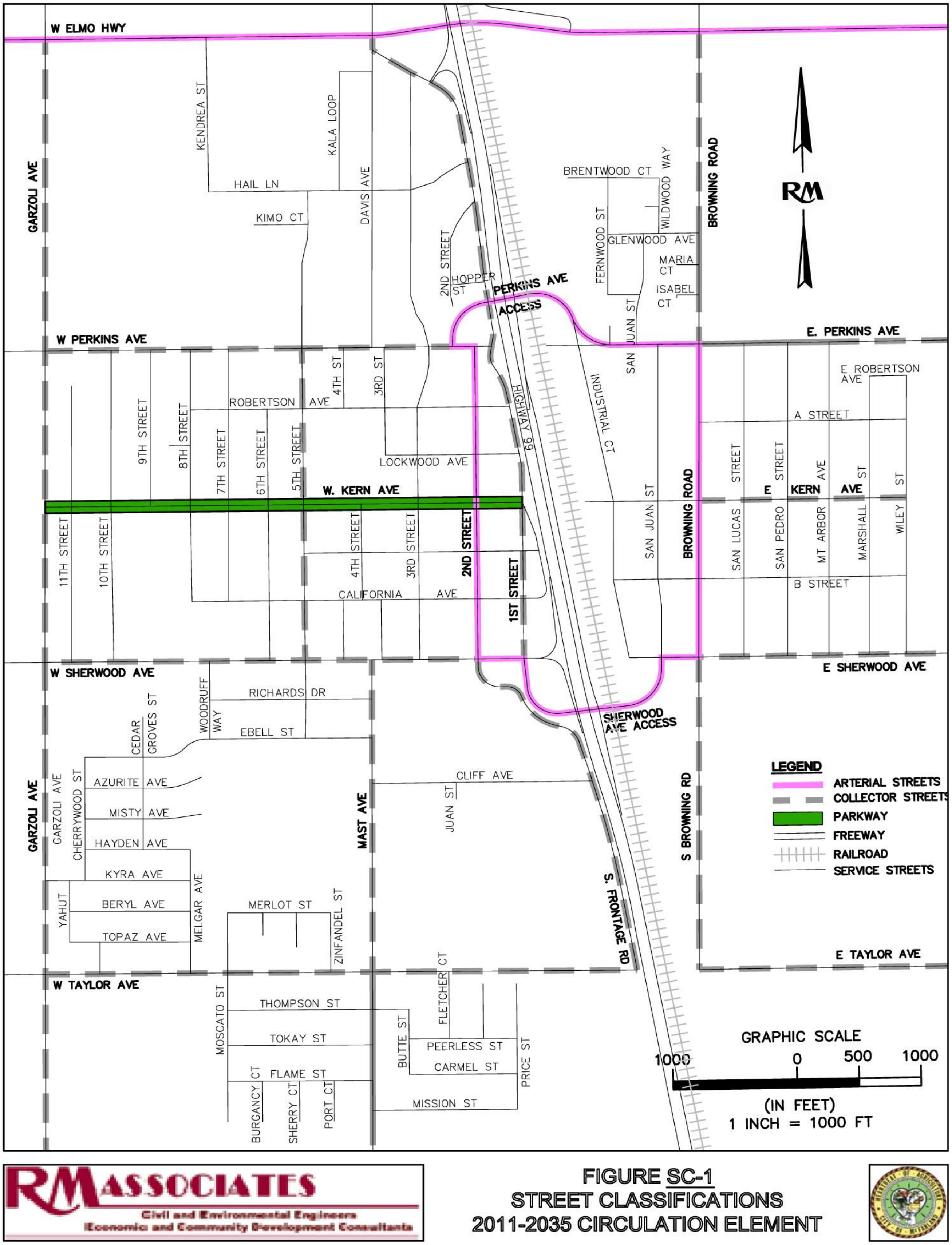
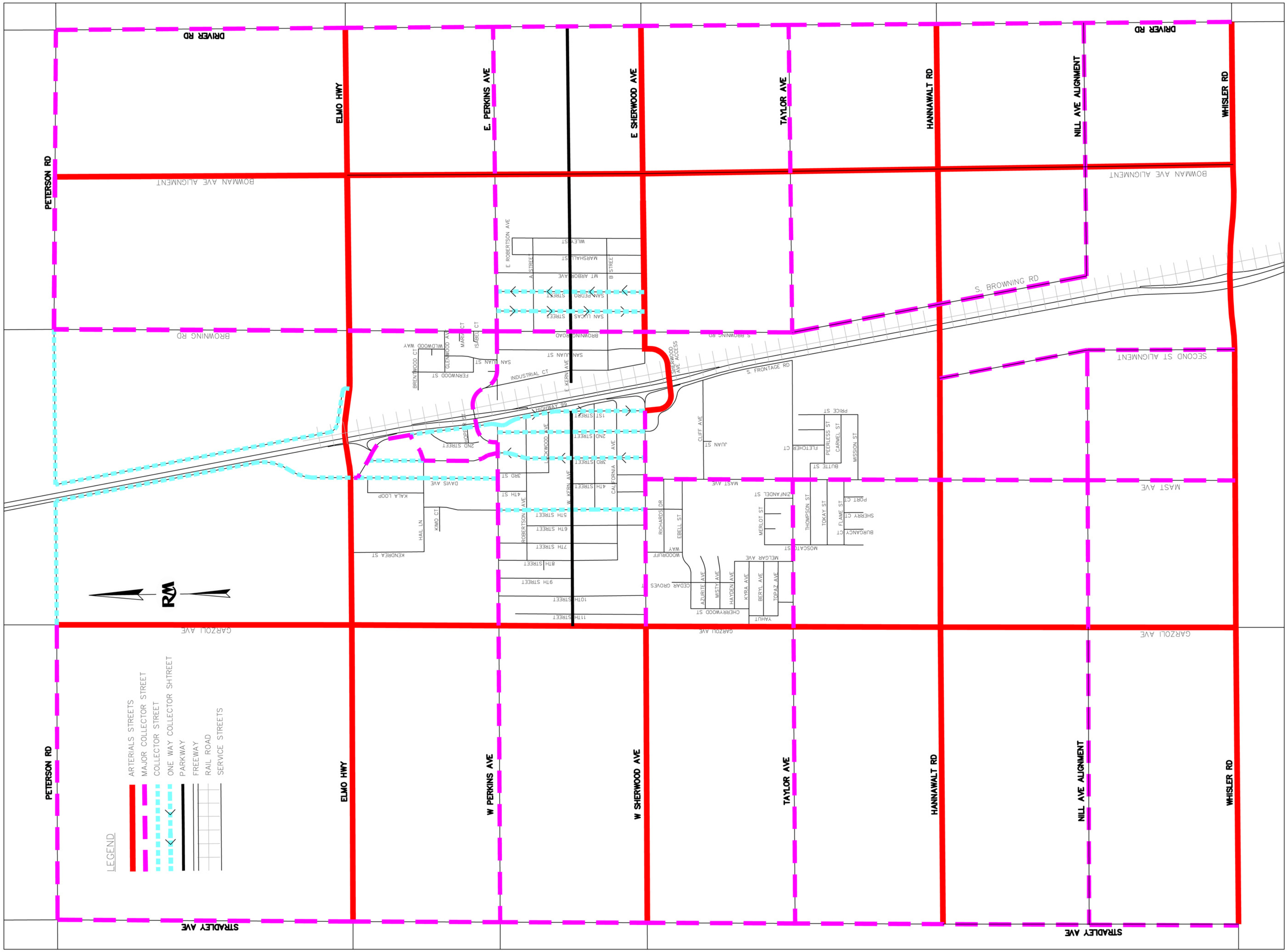
FIGURE FILC
FUTURE INTERSECTION
LANE CONFIGURATION
2011-3231 CIRCULATION ELEMENT

APPENDIX “C”

Reduced Planning Maps



1991 to 2011 Circulation Diagram and Street Classification



PROPOSED 2035 CIRCULATION DIAGRAM

RM ASSOCIATES
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Economic and Community Development Consultants
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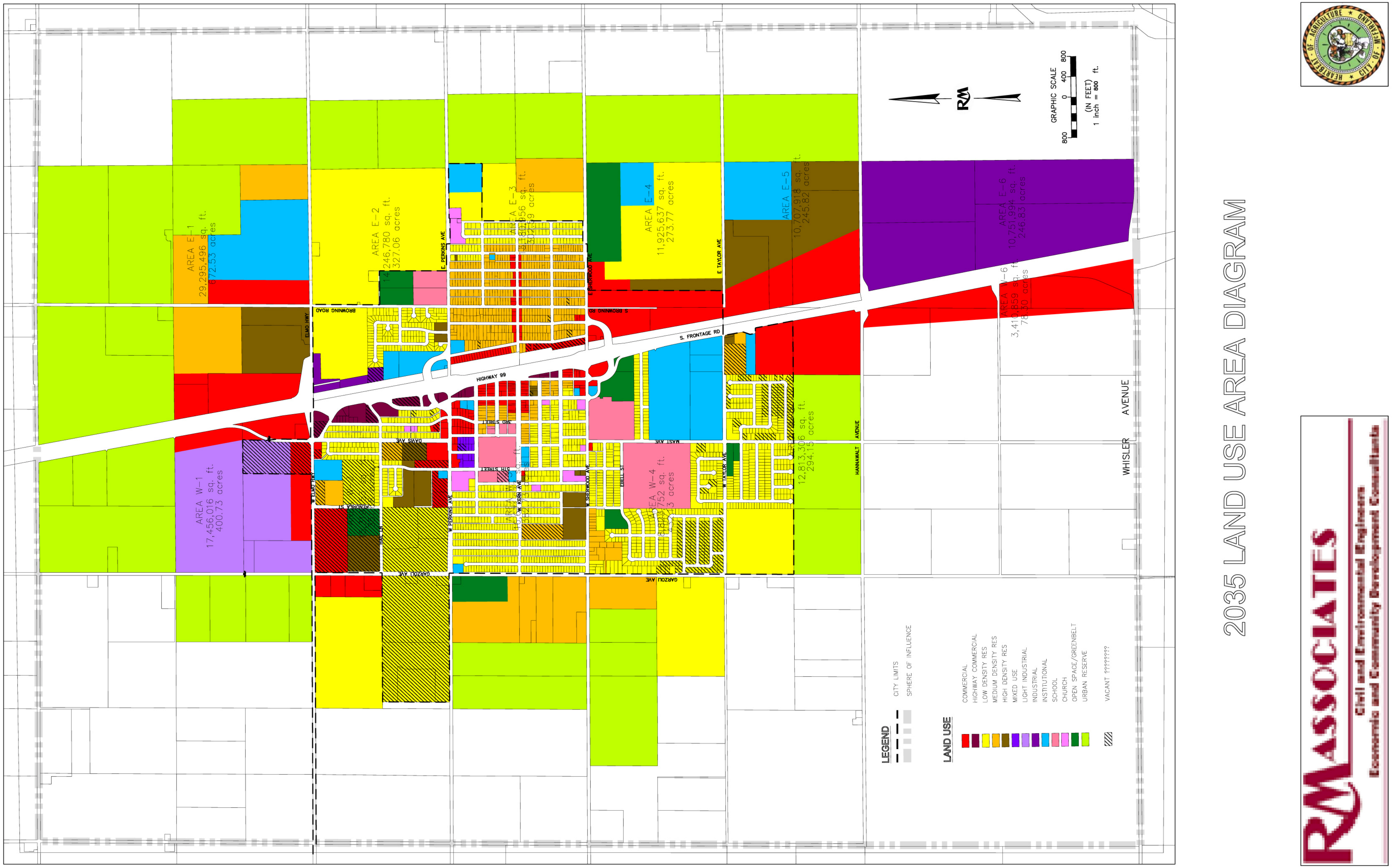
Fresno, California 93728
Phone: (559) 449-0400 Fax: (559) 237-4618
E-mail: admin-rm-assoc@att.net


2035 LAND USE AREA DIAGRAM
AREA E-1
29,295,496 sq. ft.
672.53 acres
AREA E-2
14,246,780 sq. ft.
327.06 acres
AREA E-4
11,925,637 sq. ft.
273.77 acres
AREA E-5
10,707,918 sq. ft.
245.82 acres
AREA W-1
17,456,016 sq. ft.
400.73 acres
HIGHWAY 99
S. FRONTAGE RD
BROWNING ROAD
GARZOLI AVE
WHISLER AVENUE
HANNAWALT AVENUE
GRAPHIC SCALE
(IN FEET)
1 inch = 800 ft.
LEGEND
CITY LIMITS
SPHERE OF INFLUENCE
LAND USE
COMMERCIAL
HIGHWAY COMMERCIAL
LOW DENSITY RES
MEDIUM DENSITY RES
HIGH DENSITY RES
MIXED USE
LIGHT INDUSTRIAL
INDUSTRIAL
INSTITUTIONAL
SCHOOL
CHURCH
OPEN SPACE/GREENBELT
URBAN RESERVE
VACANT ????????
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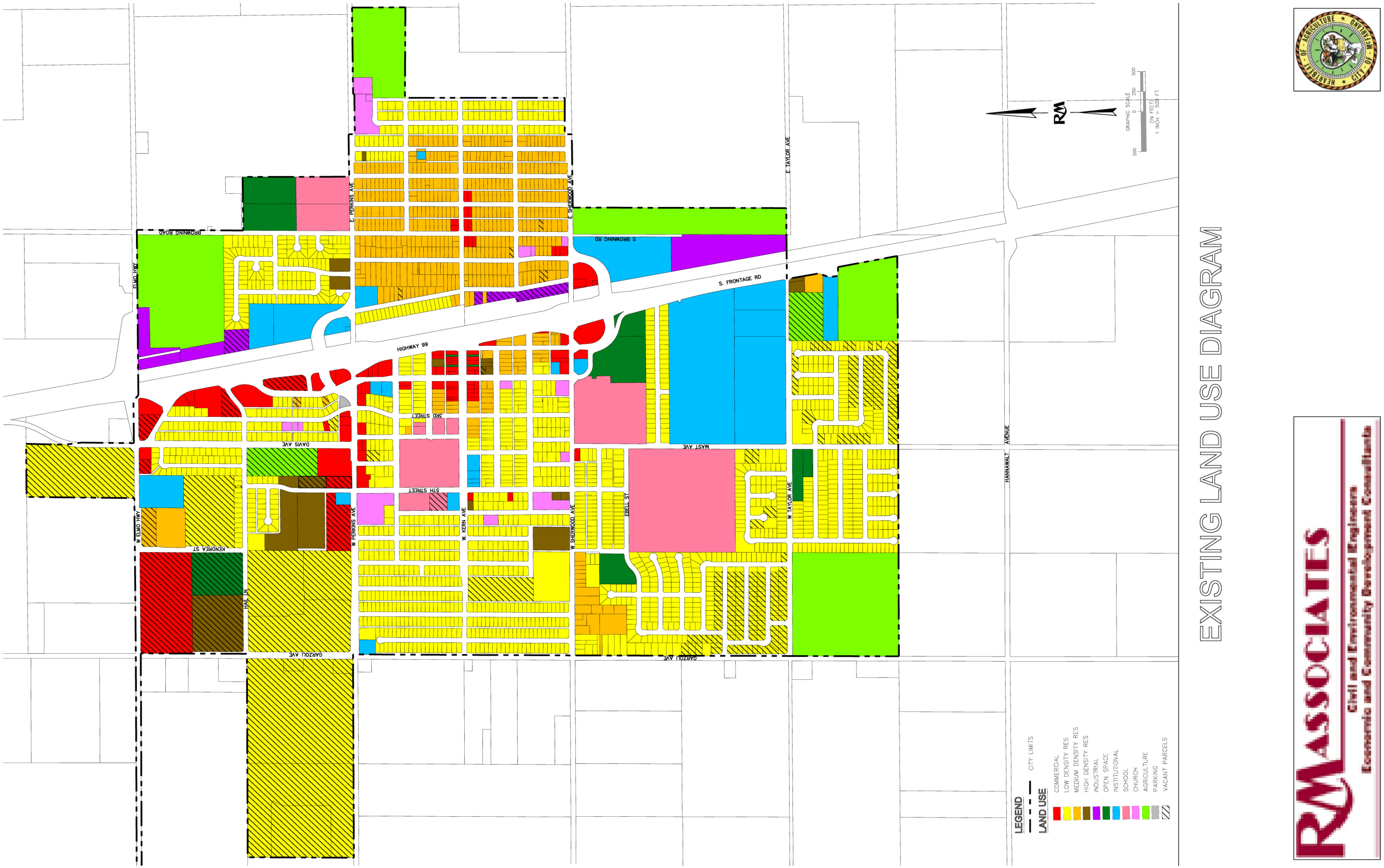
2035 LAND USE SUMMARY

(ACRES)

AREAS	LDR	MDR	HDR	MIXED USE	COMM	HWY COMM	INDUST	LIGHT INDUST	SCHOOL	CHURCH	INSTITUT	GREENBELT OPENSPACE URBAN RESERVE
W-1					**37.9**			**134.4**				**222.7**
W-2	**215.4**	**7.5**	**24.2**		**43.4**	**13.9**				**0.6**	**5.6**	**7.5**
W-3	**85.1**	**81.1**	**10.6**	**3.9**	**16.6**	**2.4**			**14.8**	**7.0**	**4.4**	**89.2**
W-4	**144.0**	**27.0**			**2.6**				**54.0**		**63.0**	**104.2**
W-5	**94.8**	**6.9**	**0.8**		**51.2**						**3.4**	**117.2**
W-6					**77.2**							
E-1		**80.6**	**38.0**		**58.9**						**59.9**	**427.8**
E-2	**194.0**		**1.9**				**8.3**		**10.0**		**11.1**	**89.9**
E-3	**59.7**	**98.6**	**0.2**		**11.7**					**3.8**	**10.2**	**78.7**
E-4	**91.8**		**9.3**		**49.9**						**12.4**	**107.6**
E-5			**79.6**		**54.0**						**33.9**	**78.4**
E-6							**246.8**					
TOTAL (ACRES)	**884.8**	**301.7**	**164.6**	**3.9**	**403.4**	**16.3**	**255.1**	**134.4**	**78.8**	**11.4**	**203.9**	**1,323.2**

APPENDIX “D”

Safe Route to School



EXISTING LAND USE DIAGRAM
LEGEND
CITY LIMITS
LAND USE
COMMERCIAL
LOW DENSITY RES
MEDIUM DENSITY RES
HIGH DENSITY RES
INDUSTRIAL
OPEN SPACE
INSTITUTIONAL
SCHOOL
CHURCH
AGRICULTURE
PARKING
VACANT PARCELS
GRAPHIC SCALE
(IN FEET)
1 INCH = 500 FT.
HIGHWAY 99
S. FRONTAGE RD
BROWNING ROAD
S BROWNING RD
E PERKINS AVE
E SHERWOOD AVE
E TAYLOR AVE
3RD STREET
5TH STREET
DAVIS AVE
MAST AVE
W PERKINS AVE
W KERN AVE
W SHERWOOD AVE
EBELL ST
W TAYLOR AVE
W ELMO HWY
KENDREA ST
GARZOLI AVE
HANNAWALT AVENUE
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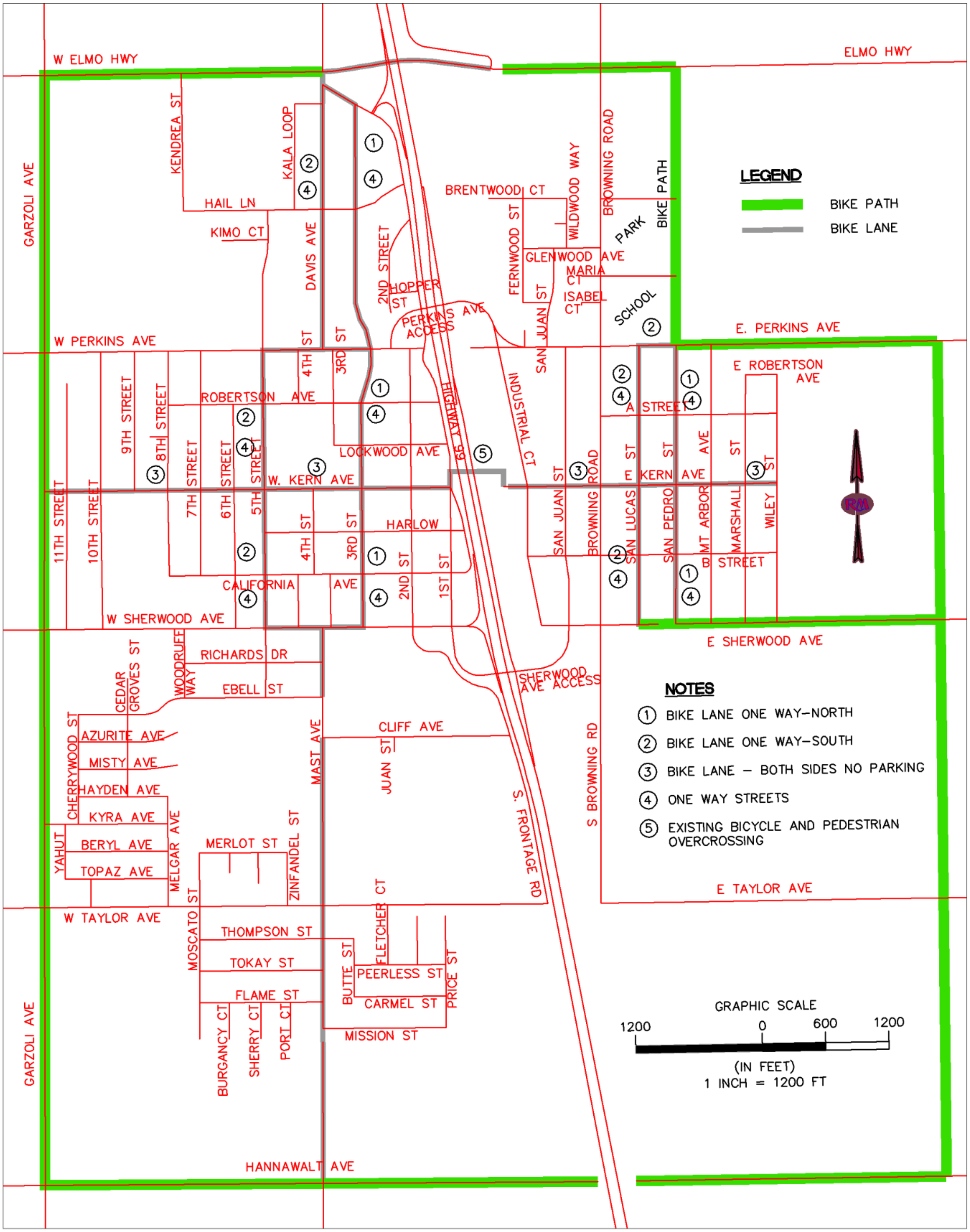

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FIGURE BCP-1
BICYCLE CIRCULATION PLAN
2011-2035 CIRCULATION ELEMENT

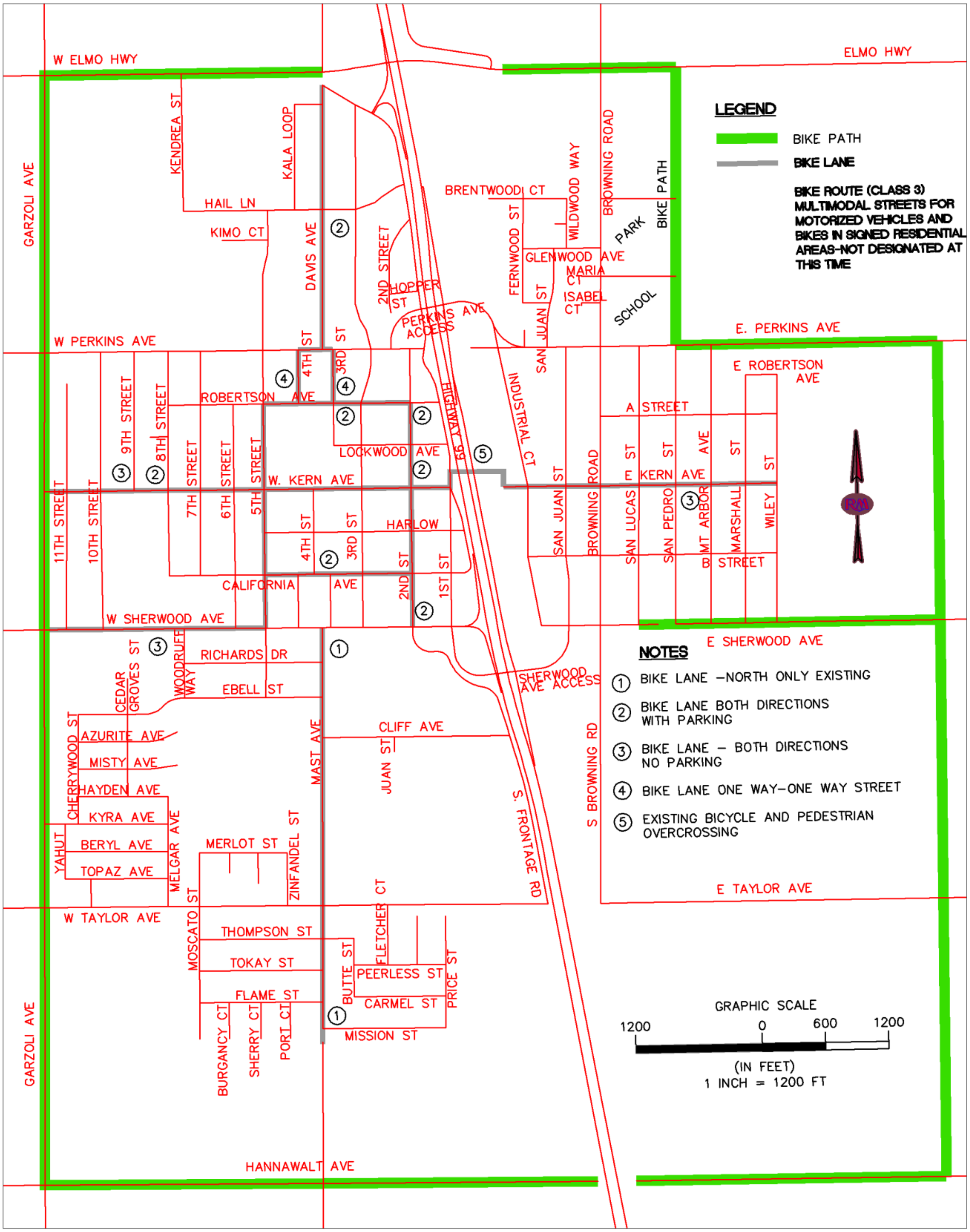

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FIGURE BCP-2
BICYCLE CIRCULATION PLAN
2011-2035 CIRCULATION ELEMENT

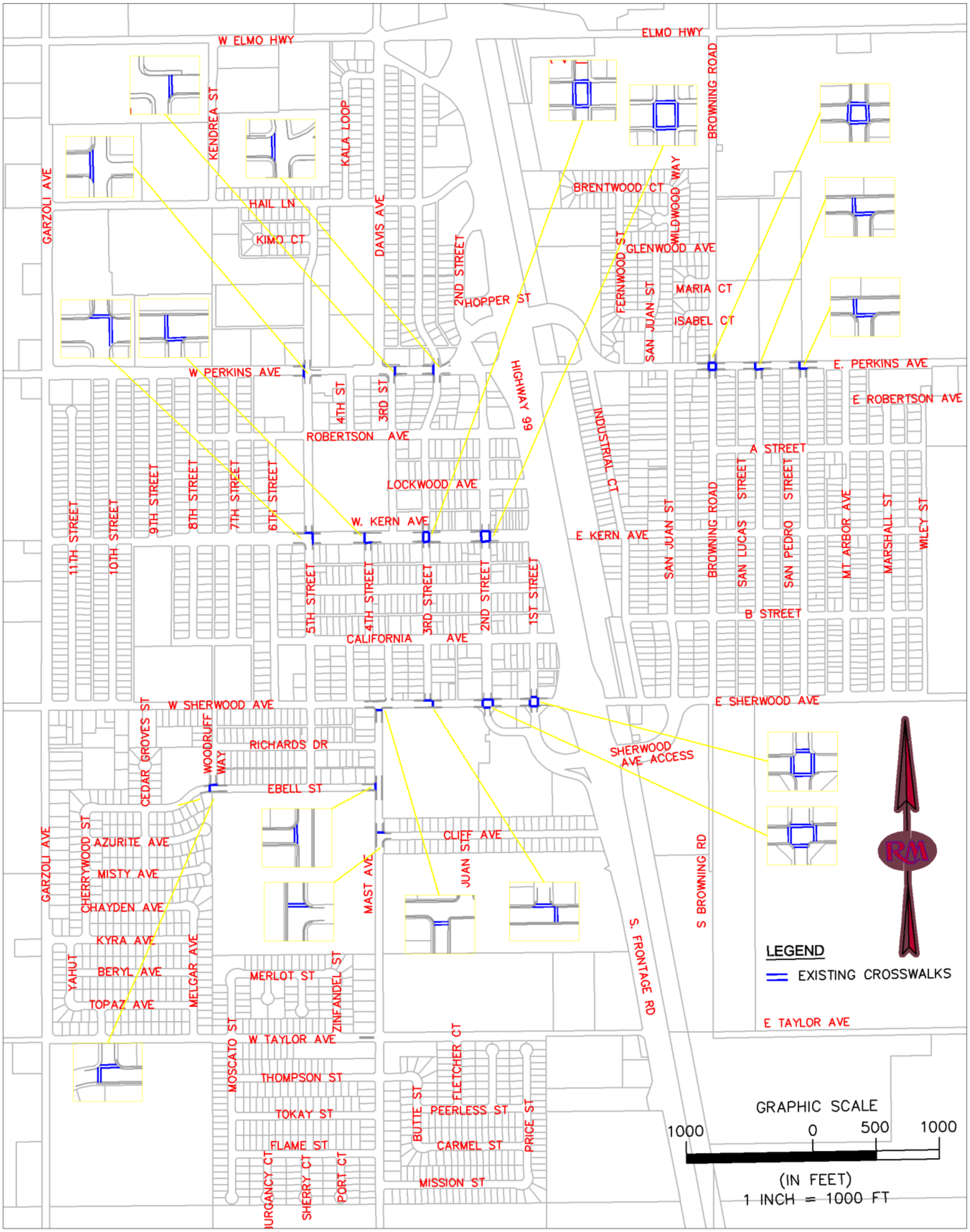

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FIGURE PC-1
EXISTING PEDESTRIAN CROSSWALKS
2011-2035 CIRCULATION ELEMENT

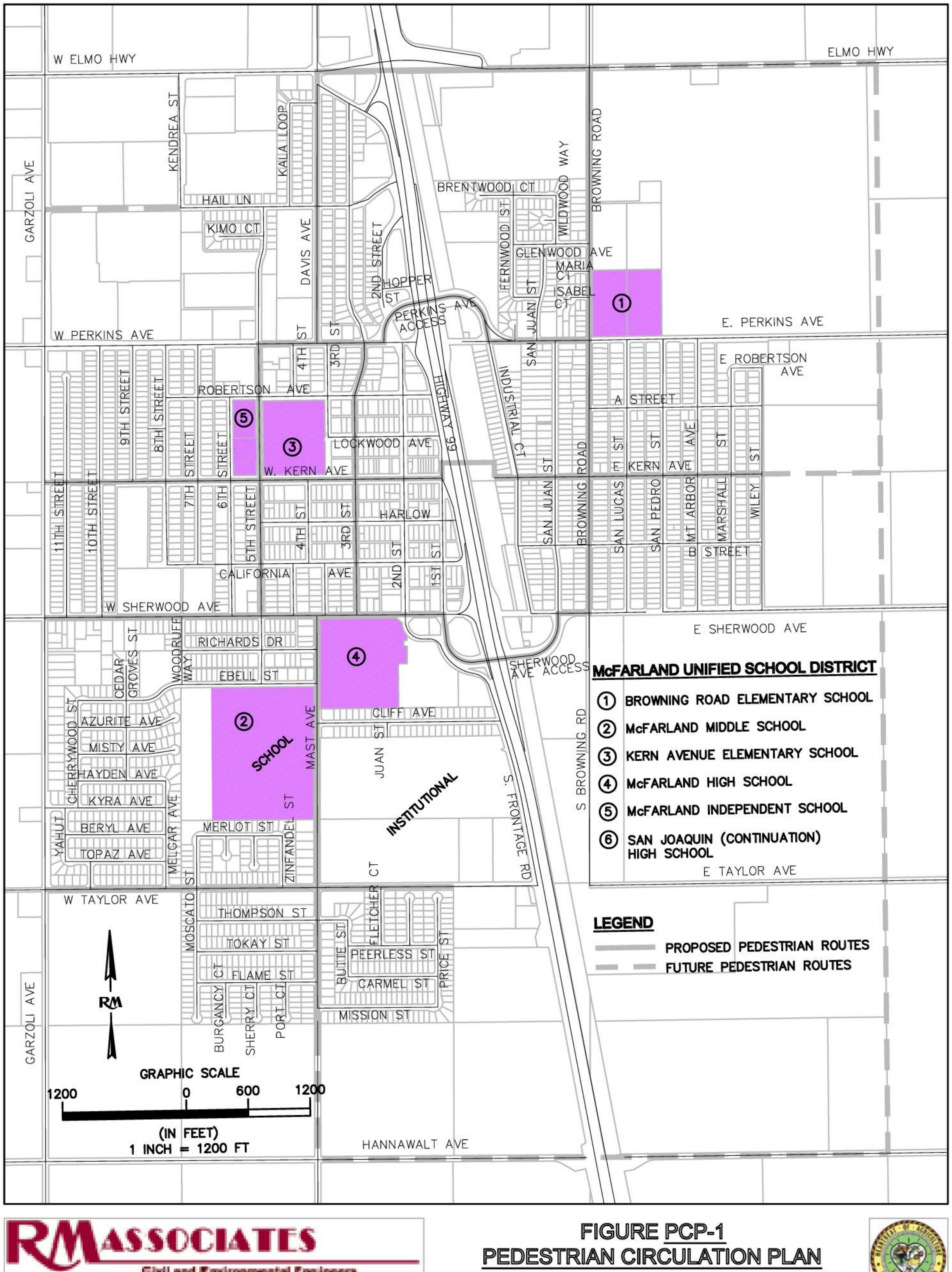

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FIGURE PCP-1
PEDESTRIAN CIRCULATION PLAN
2011-2035 CIRCULATION ELEMENT

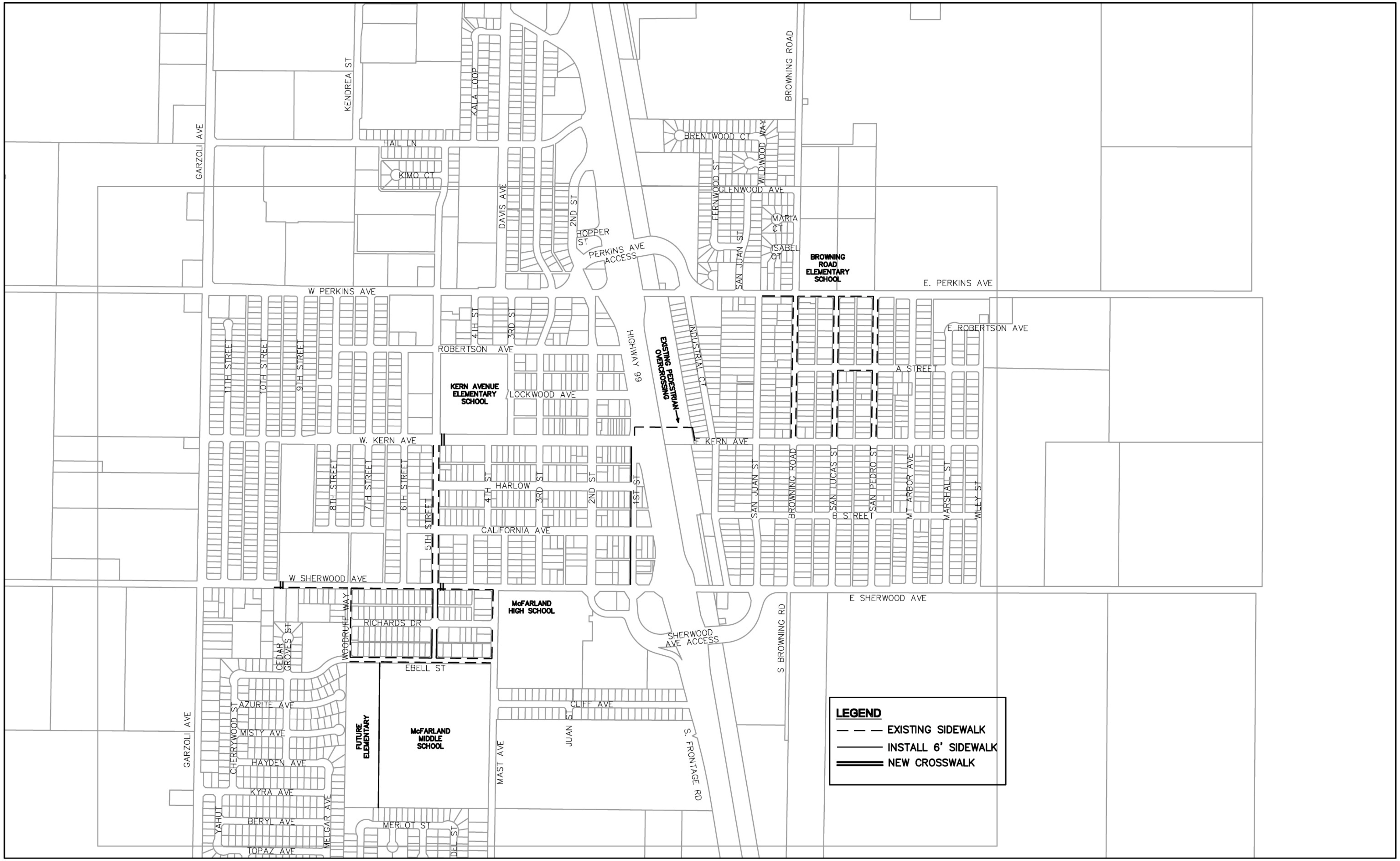

FIGURE SRS-1
SAFE ROUTE TO SCHOOLS
2011-2035 CIRCULATION ELEMENT

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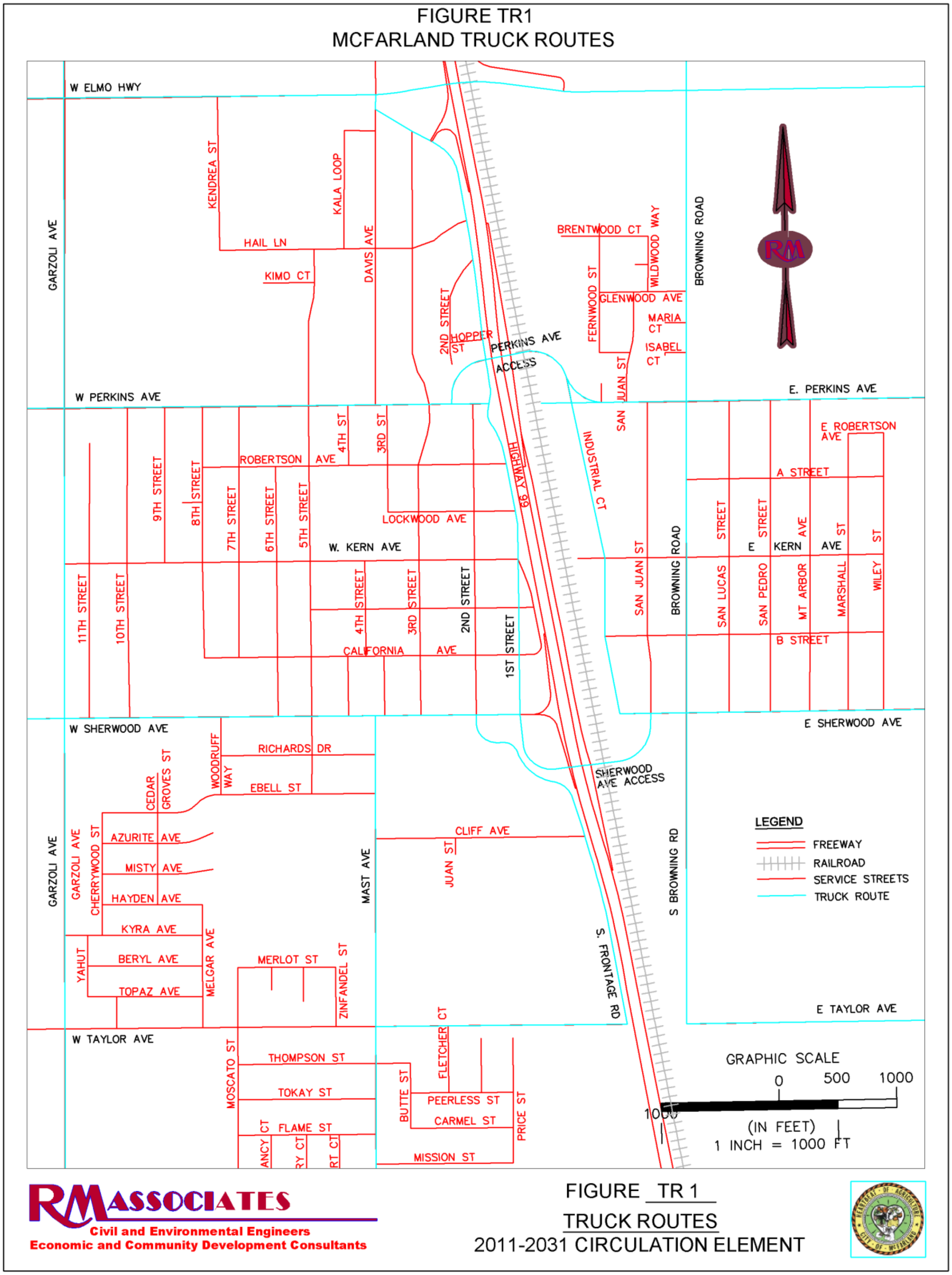
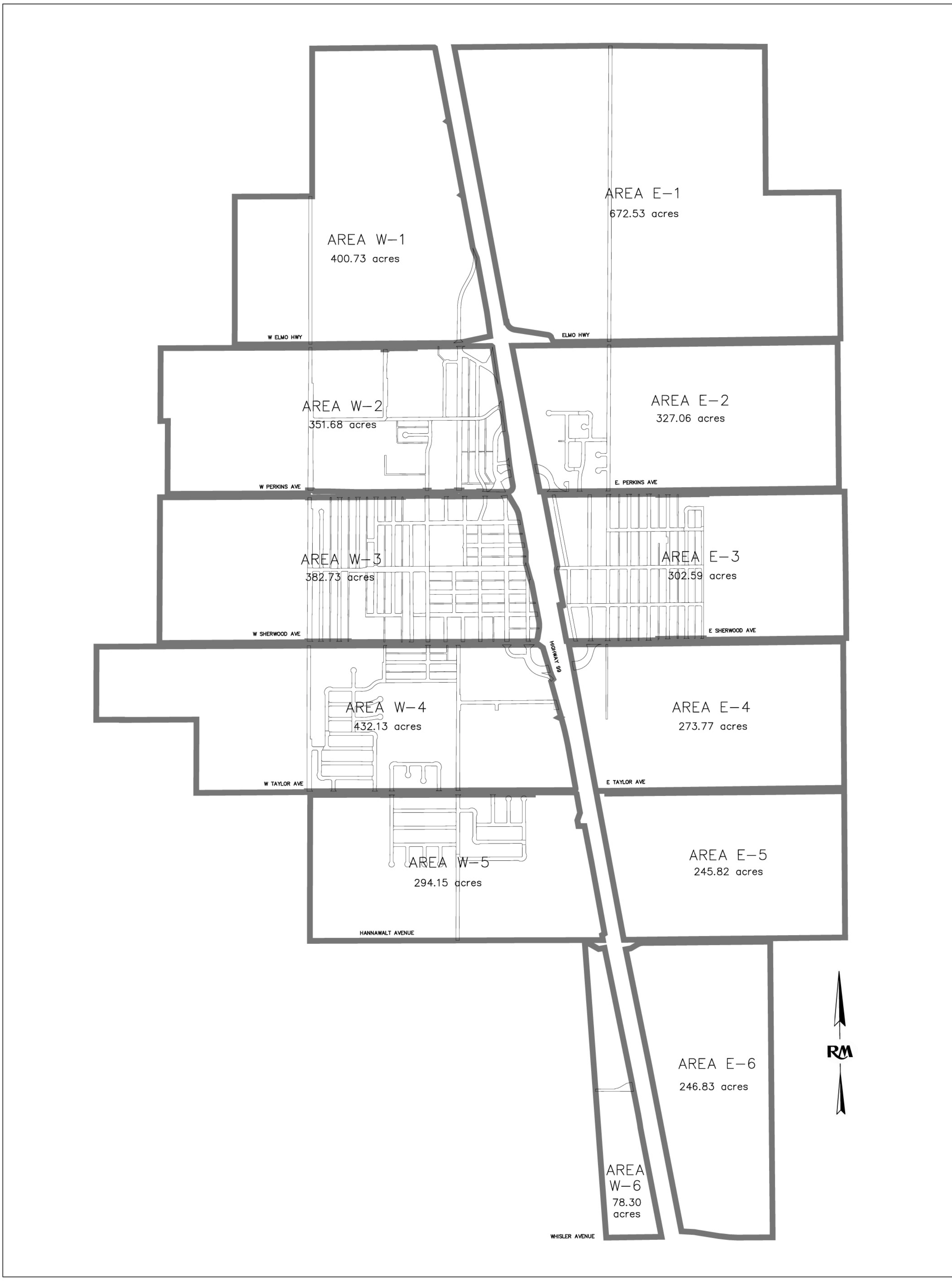


FIGURE TR1
McFARLAND TRUCK ROUTES

APPENDIX "E"

Traffic Analysis



2035 LAND USE AREA DIAGRAM

SHEET 1 OF 2

RM ASSOCIATES

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AREA W-1		
COMMERCIAL	1,648,196 SQFT	38 AC
LIGHT INDUSTRIAL	5,853,031 SQFT	134 AC
URBAN RESERVE	9,699,259 SQFT	223 AC
ROADS	255,530 SQFT	6 AC
TOTALS	17,456,016 SQFT	401 AC

AREA W-2		
COMMERCIAL	1,891,670 SQFT	43 AC
HIGHWAY COMMERCIAL	603,093 SQFT	14 AC
LOW DENSITY RES.	9,384,141 SQFT	215 AC
MEDIUM DENSITY RES.	324,841 SQFT	8 AC
HIGH DENSITY RES.	1,052,227 SQFT	24 AC
INSTITUTIONAL	244,651 SQFT	6 AC
OPEN SPACE/GREENBELT	325,913 SQFT	8 AC
CHURCH	26,868 SQFT	.62 AC
ROADS	1,398,633 SQFT	32 AC
TOTALS	15,319,153 SQFT	352 AC

AREA W-3		
COMMERCIAL	720,288 SQFT	17 AC
HIGHWAY COMMERCIAL	105,836 SQFT	2 AC
LOW DENSITY RES.	3,708,702 SQFT	85 AC
MEDIUM DENSITY RES.	3,530,688 SQFT	81 AC
HIGH DENSITY RES.	461,376 SQFT	11 AC
MIXED USE	168,546 SQFT	4 AC
INSTITUTIONAL	191,787 SQFT	4 AC
SCHOOL	642,751 SQFT	15 AC
CHURCH	305,579 SQFT	7 AC
OPEN SPACE/GREENBELT	529,814 SQFT	12 AC
URBAN RESERVE	3,353,749 SQFT	77 AC
ROADS	2,952,375 SQFT	68 AC
TOTALS	16,671,633 SQFT	383 AC

AREA W-4		
COMMERCIAL	112,899 SQFT	3 AC
LOW DENSITY RES.	6,272,385 SQFT	144 AC
MEDIUM DENSITY RES.	1,174,800 SQFT	27 AC
INSTITUTIONAL	2,743,825 SQFT	63 AC
SCHOOL	2,350,823 SQFT	54 AC
OPEN SPACE/GREENBELT	548,290 SQFT	13 AC
URBAN RESERVE	3,989,774 SQFT	92 AC
ROADS	1,625,059 SQFT	37 AC
TOTALS	18,823,752 SQFT	432 AC

AREA W-5		
COMMERCIAL	2,230,613 SQFT	51 AC
LOW DENSITY RES.	4,130,550 SQFT	95 AC
MEDIUM DENSITY RES.	297,720 SQFT	7 AC
HIGH DENSITY RES.	35,726 SQFT	.82 AC
INSTITUTIONAL	147,113 SQFT	3 AC
OPEN SPACE/GREENBELT	125,497 SQFT	3 AC
URBAN RESERVE	4,981,293 SQFT	114 AC
ROADS	864,689 SQFT	20 AC
TOTALS	12,813,306 SQFT	294 AC

AREA W-6		
COMMERCIAL	3,363,248 SQFT	77 AC
ROADS	47,611 SQFT	1 AC
TOTALS	3,410,859 SQFT	78 AC

AREA E-1		
COMMERCIAL	2,566,370 SQFT	59 AC
MEDIUM DENISTY RES.	3,511,723 SQFT	81 AC
HIGH DENSITY RES.	1,656,415 SQFT	38 AC
INSTITUTIONAL	2,608,258 SQFT	60 AC
URBAN RESERVE	18,635,601 SQFT	428 AC
ROADS	315,066 SQFT	7 AC
TOTALS	29,295,496 SQFT	673 AC

AREA E-2		
LOW DENSITY RES.	8,449,585 SQFT	194 AC
HIGH DENSITY RES.	80,762 SQFT	2 AC
INDUSTRIAL	359,666 SQFT	8 AC
INSTITUTIONAL	481,799 SQFT	11 AC
SCHOOL	433,697 SQFT	10 AC
OPEN SPACE/GREENBELT	431,560 SQFT	10 AC
URBAN RESERVE	3,485,469 SQFT	80 AC
ROADS	524,223 SQFT	12 AC
TOTALS	14,246,780 SQFT	327 AC

AREA E-3		
COMMERCIAL	510,378 SQFT	12 AC
LOW DENSITY RES.	2,599,825 SQFT	60 AC
MEDIUM DENSITY RES.	4,293,751 SQFT	99 AC
HIGH DENSITY RES.	6,014 SQFT	.14 AC
INSTITUTIONAL	442,108 SQFT	10 AC
CHURCH	165,465 SQFT	4 AC
URBAN RESERVE	3,426,011 SQFT	79 AC
ROADS	1,737,413 SQFT	40 AC
TOTALS	13,180,956 SQFT	303 AC

AREA E-4		
COMMERCIAL	2,175,472 SQFT	50 AC
LOW DENSITY RES.	4,000,244 SQFT	92 AC
HIGH DENSITY RES.	406,115 SQFT	9 AC
INSTITUTIONAL	541,958 SQFT	12 AC
OPEN SPACE/GREENBELT	1,268,707 SQFT	29 AC
URBAN RESERVE	3,418,280 SQFT	79 AC
ROADS	114,861 SQFT	3 AC
TOTALS	11,925,637 SQFT	274 AC

AREA E-5		
COMMERCIAL	2,350,130 SQFT	54 AC
HIGH DENSITY RES.	3,467,173 SQFT	80 AC
INSTITUTIONAL	1,474,491 SQFT	34 AC
URBAN RESERVE	3,416,124 SQFT	78 AC
TOTALS	10,707,918 SQFT	246 AC

AREA E-6		
INDUSTRIAL	10,751,994 SQFT	247 AC
TOTAL	10,751,994 SQFT	247 AC

NOTE:

1. ALL INDIVIDUAL LAND USE SQUARE FOOTAGES AREAS AND TOTAL SQUARE FOOTAGE AREAS ARE CADD GENERATED FROM THE 2035 LAND USE AUTO CAD BASE DRAWINGS.
2. THE MATHEMATICAL TOTAL OF INDIVIDUAL LAND USE SQUARE FOOTAGES AREAS, MAY NOT MATCH THE CADD GENERATED SQUARE FOOTAGES TOTAL FOR AREAS W-1 TO W-6 AND AREAS E-1 TO E-6.
3. SQUARE FOOTAGE AREAS WERE CONVERTED TO ACREAGE AREAS AND ROUNDED TO THE NEAREST WHOLE ACRE FOR ALL LAND USE PARCELS GREATER THAN (43,560 SQ.FT.) ONE ACRE.

2035 LAND USE AREA TABLES

SHEET 2 OF 2

RMASSOCIATES
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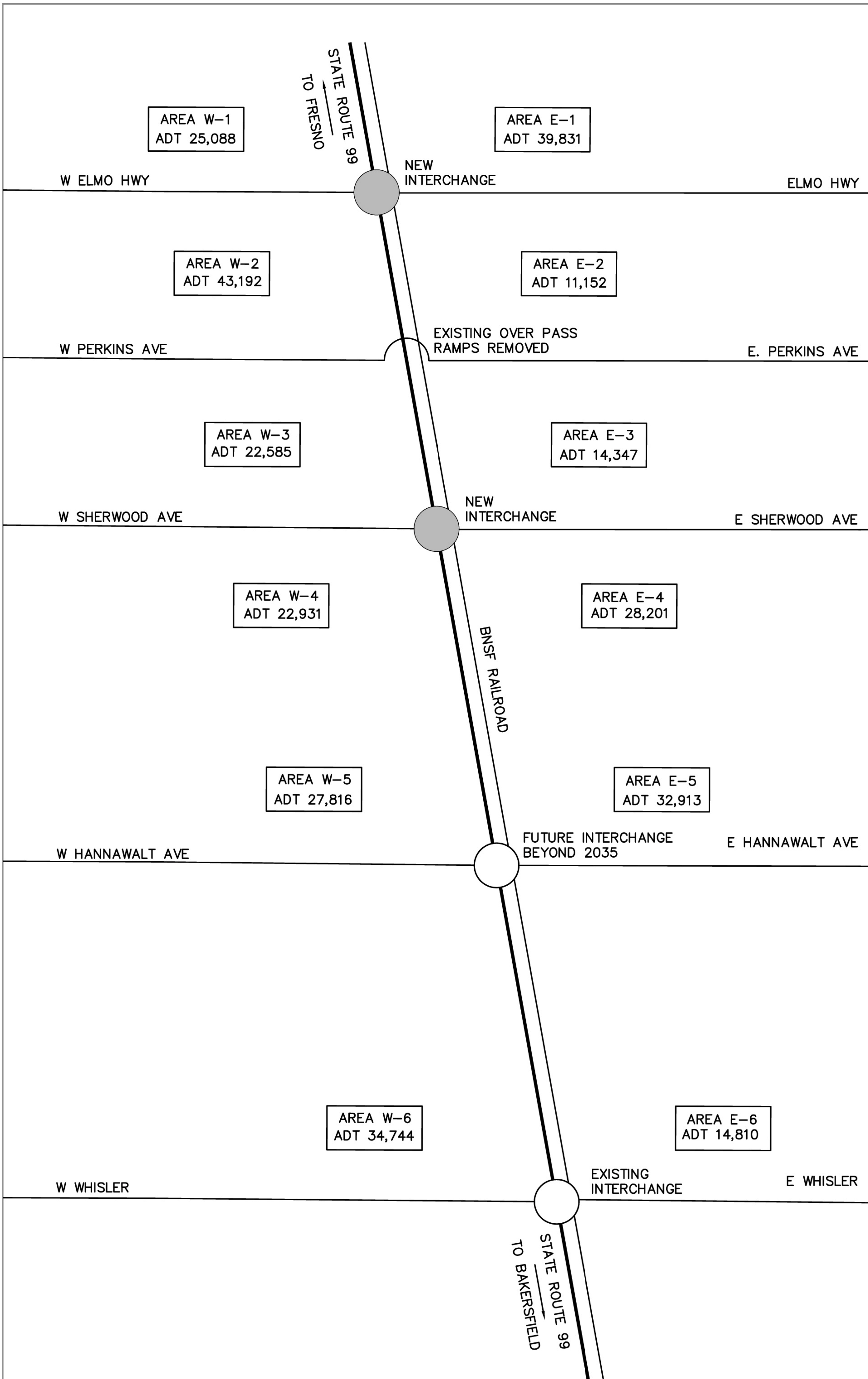
HEARTBEAT · OF · AGRICULTURE · CITY · OF · MCFARLAND



RM ASSOCIATES
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FIGURE xxxxx
AREA AVERAGE DAILY TRIP (ADT) GENERATION
2011-2035 CIRCULATION ELEMENT

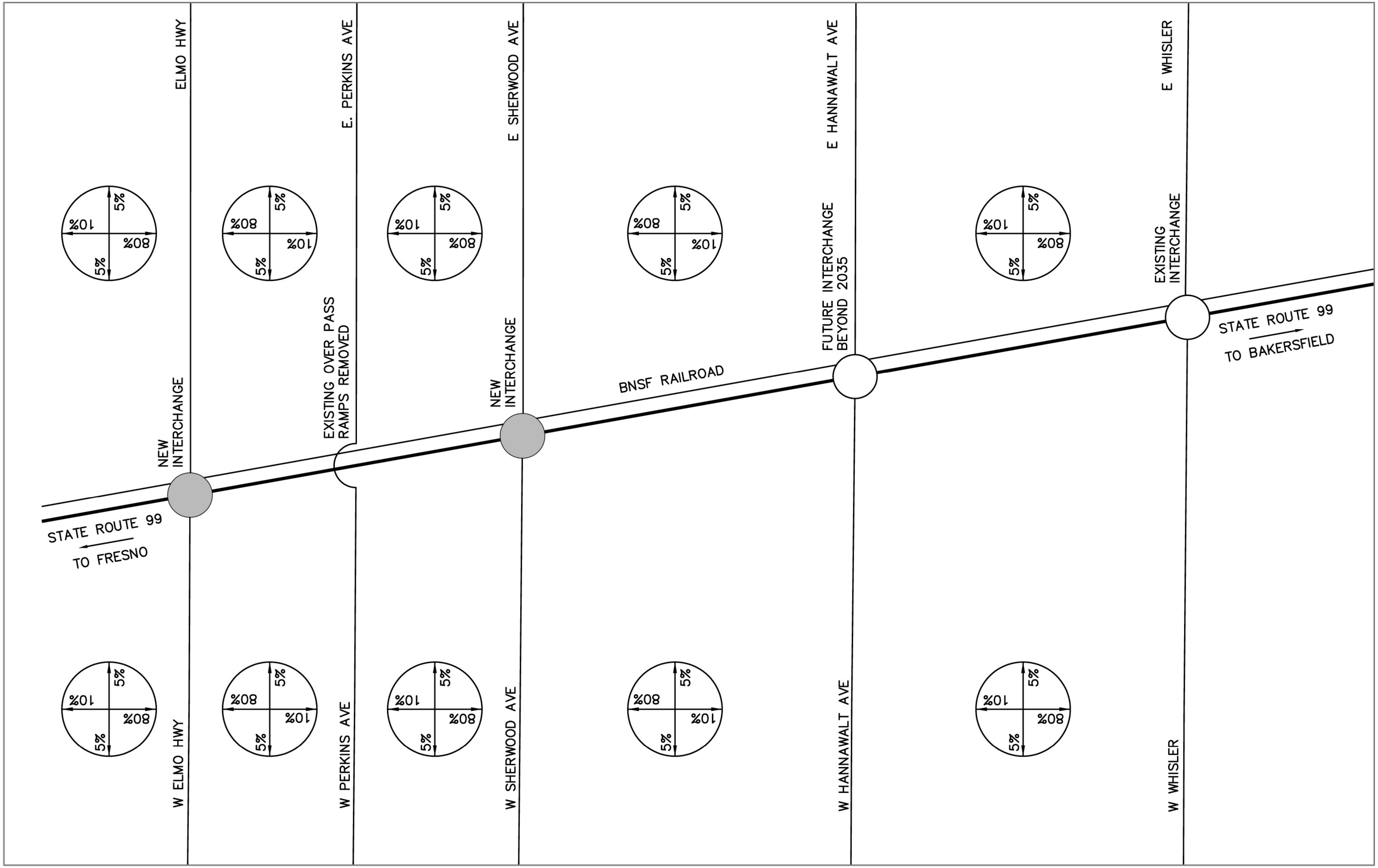

FIGURE xxxxx
AREA TRIP DESIGNATION
2011-2035 CIRCULATION ELEMENT

RM ASSOCIATES
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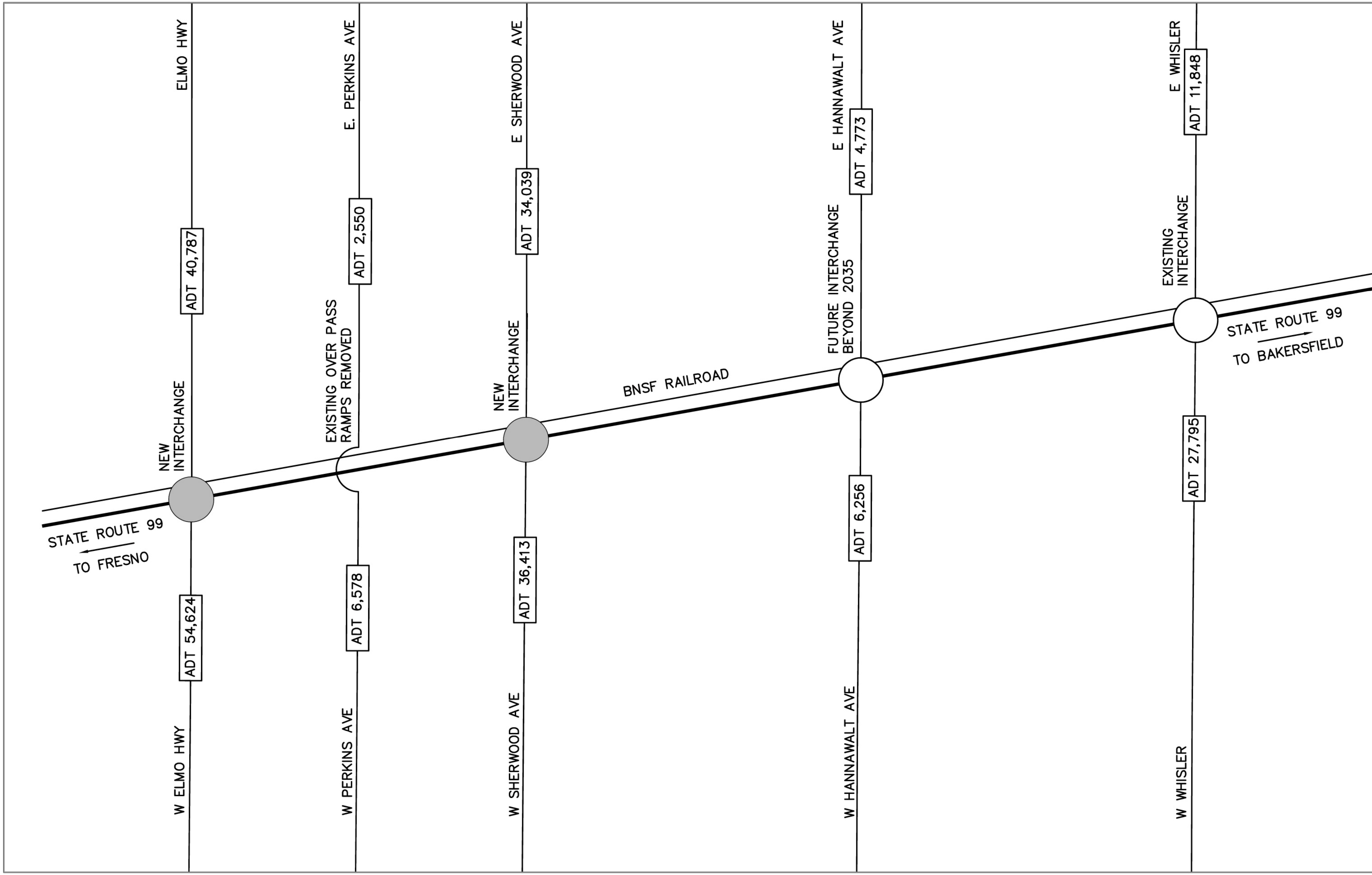

FIGURE xxxxx
EAST-WEST ARTERIAL
AVERAGE DAILY TRAFFIC (ADT) ASSIGNMENT
2011-2035 CIRCULATION ELEMENT

RM ASSOCIATES
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AREA W-1

LAND USE DESIGNATION	AREA- SQUARE FOOT	AREA -ACRES	LAND USE TRIP GENERATION FACTOR –PER ACRE	AVERAGE DAILY TRAFFIC
Low Density Residential	0		40	
Med Density Residential	0		52	
High Density Residential	0		64	
Mixed Used	0		230	
Commercial	1,648,196	37.84	450	17,026
Highway Commercial	0		900	
Industrial	0		60	
Light Industrial	5,853,031	134.37	60	8,062
School	0		150	
Church	0		100	
Institutional	0		100	
Greenbelt / Open Space / Urban reserve	9,699,259	222.66	2	445

TOTAL 25,088

AREA W-2

LAND USE DESIGNATION	AREA- SQUARE FOOT	AREA -ACRES	LAND USE TRIP GENERATION FACTOR –PER ACRE	AVERAGE DAILY TRAFFIC
Low Density Residential	9,384,141	215.43	40	8,617
Med Density Residential	324,841	7.48	52	388
High Density Residential	1,052,227	24.16	64	1,546
Mixed Used			230	
Commercial	1,891,670	43.43	450	19,542
Highway Commercial	603,093	13.86	900	12,460
Industrial			60	
Light Industrial			60	
School			150	
Church	26,868	0.62	100	62
Institutional	244,651	6.62	100	562
Greenbelt / Open Space / Urban reserve	325,913	7.48	2	15
			TOTAL	43,192

AREA W-3

LAND USE DESIGNATION	AREA- SQUARE FOOT	AREA -ACRES	LAND USE TRIP GENERATION FACTOR –PER ACRE	AVERAGE DAILY TRAFFIC
Low Density Residential	3,708,702	85.14	40	3,406
Med Density Residential	3,530,688	81.05	52	4,215
High Density Residential	461,376	10.59	64	678
Mixed Used	168,546	3.87	230	890
Commercial	720,288	16.54	450	7,441
Highway Commercial	105,836	2.43	900	2,187
Industrial			60	
Light Industrial			60	
School	642,751	14.76	150	2,213
Church	305,579	7.02	100	702
Institutional	191,787	4.40	100	404
Greenbelt / Open Space / Urban reserve	3.883,563	89.15	2	178
			TOTAL	22,585

AREA W-4

LAND USE DESIGNATION	AREA- SQUARE FOOT	AREA -ACRES	LAND USE TRIP GENERATION FACTOR –PER ACRE	AVERAGE DAILY TRAFFIC
Low Density Residential	6,272,385	143.99	40	5,760
Med Density Residential	1,174,800	26.97	52	1,402
High Density Residential			64	
Mixed Used			230	
Commercial	112,899	2.59	450	1,166
Highway Commercial			900	
Industrial			60	
Light Industrial			60	
School	2,350,823	53.97	150	8,095
Church			100	
Institutional	2,743,825	62.99	100	6,299
Greenbelt / Open Space / Urban reserve	4,538,064	104.18	2	209

TOTAL 22,931

AREA W-5

LAND USE DESIGNATION	AREA- SQUARE FOOT	AREA -ACRES	LAND USE TRIP GENERATION FACTOR –PER ACRE	AVERAGE DAILY TRAFFIC
Low Density Residential	4,130,550	94.83	40	3,793
Med Density Residential	297,720	6.84	52	356
High Density Residential	35,726	0.82	64	52
Mixed Used			230	
Commercial	2,230,613	51.21	450	23,043
Highway Commercial			900	
Industrial			60	
Light Industrial			60	
School			150	
Church			100	
Institutional	147,113	3.38	100	338
Greenbelt / Open Space / Urban reserve	5,106,790	117,24	2	234
			TOTAL	27,816

AREA W-6

LAND USE DESIGNATION	AREA- SQUARE FOOT	AREA –ACRES	LAND USE TRIP GENERATION FACTOR –PER ACRE	AVERAGE DAILY TRAFFIC
Low Density Residential			40	
Med Density Residential			52	
High Density Residential			64	
Mixed Used			230	
Commercial	3,363,248	77.21	450	34,744
Highway Commercial			900	
Industrial			60	
Light Industrial			60	
School			150	
Church			100	
Institutional			100	
Greenbelt / Open Space / Urban reserve			2	

TOTAL 34,744

AREA E-1

LAND USE DESIGNATION	AREA- SQUARE FOOT	AREA -ACRES	LAND USE TRIP GENERATION FACTOR –PER ACRE	AVERAGE DAILY TRAFFIC
Low Density Residential			40	
Med Density Residential	3,511,523	80.61	52	4,192
High Density Residential	1,656,415	38.03	64	2,434
Mixed Used			230	
Commercial	2,566,370	58.92	450	26,512
Highway Commercial			900	
Industrial			60	
Light Industrial			60	
School			150	
Church			100	
Institutional	2,608,258	59.88	100	5,988
Greenbelt / Open Space / Urban reserve	18,635,601	427.81	2	855
			TOTAL	39,981

AREA E-2

LAND USE DESIGNATION	AREA- SQUARE FOOT	AREA -ACRES	LAND USE TRIP GENERATION FACTOR –PER ACRE	AVERAGE DAILY TRAFFIC
Low Density Residential	8,449,585	193.98	40	7,759
Med Density Residential			52	
High Density Residential	80,762	1.85	64	119
Mixed Used			230	
Commercial			450	
Highway Commercial			900	
Industrial	359,666	8.26	60	495
Light Industrial			60	
School	433,679	9.96	150	1,493
Church			100	
Institutional	481,799	11.06	100	1,106
Greenbelt / Open Space / Urban reserve	3,917,029	89.93	2	180

TOTAL 11,152

AREA E-3

LAND USE DESIGNATION	AREA- SQUARE FOOT	AREA -ACRES	LAND USE TRIP GENERATION FACTOR –PER ACRE	AVERAGE DAILY TRAFFIC
Low Density Residential	2,599,825	59.68	40	2,387
Med Density Residential	4,293,751	98.57	52	5,126
High Density Residential	6,014	0.14	64	9
Mixed Used			230	
Commercial	510,378	11.72	450	5,273
Highway Commercial			900	
Industrial			60	
Light Industrial			60	
School			150	
Church	165,465	3.80	100	380
Institutional	442,108	10.15	100	1,015
Greenbelt / Open Space / Urban reserve	3,426,011	78.65	2	157

TOTAL 14,347

AREA E-4

LAND USE DESIGNATION	AREA- SQUARE FOOT	AREA -ACRES	LAND USE TRIP GENERATION FACTOR –PER ACRE	AVERAGE DAILY TRAFFIC
Low Density Residential	4,000,244	91.83	40	3,673
Med Density Residential			52	
High Density Residential	406,115	9.32	64	597
Mixed Used			230	
Commercial	2,175,472	49.94	450	22,474
Highway Commercial			900	
Industrial			60	
Light Industrial			60	
School			150	
Church			100	
Institutional	541,058	12.42	100	1,242
Greenbelt / Open Space / Urban reserve	4,686,987	107.60	2	315

TOTAL 28,201

AREA E-5

LAND USE DESIGNATION	AREA- SQUARE FOOT	AREA -ACRES	LAND USE TRIP GENERATION FACTOR –PER ACRE	AVERAGE DAILY TRAFFIC
Low Density Residential			40	
Med Density Residential			52	
High Density Residential	3,467,173	79.60	64	5,094
Mixed Used			230	
Commercial	2,350,130	53.95	450	24,278
Highway Commercial			900	
Industrial			60	
Light Industrial			60	
School			150	
Church			100	
Institutional	1,474,491	33.85	100	3,385
Greenbelt / Open Space / Urban reserve	3,416,124	78.42	2	156

TOTAL 32,913

AREA E-6

LAND USE DESIGNATION	AREA- SQUARE FOOT	AREA -ACRES	LAND USE TRIP GENERATION FACTOR –PER ACRE	AVERAGE DAILY TRAFFIC
Low Density Residential			40	
Med Density Residential			52	
High Density Residential			64	
Mixed Used			230	
Commercial			450	
Highway Commercial			900	
Industrial	10,751,994	246.83	60	14,810
Light Industrial			60	
School			150	
Church			100	
Institutional			100	
Greenbelt / Open Space / Urban reserve			2	

TOTAL 14,810

APPENDIX "F"

Transit Passenger Survey and Operation Data

HIGHLIGHTS OF THE ONBOARD PASSENGER SURVEY FOR CITY OF MCFARLAND DIAL-A-RIDE AND STAKEHOLDER KEY ISSUES

- Based on the results of the survey, the riders of McFarland Transit, for the most part, do not have access to a car and their annual household income is well below the median household income for the City. This underscores the importance of the transit systems in the community.

- Responders identified preferred improvements to transit. The most popular service improvements for the dial-a-ride services were weekend service, later weekday service and earlier weekday service.

- Survey respondents gave very high marks to McFarland Transit. For the overall system ratings for McFarland, more than 90% of riders said the services were good or excellent.

- Most of the trips on dial-a-ride were for medical trips (33%), shopping (30%) or personal errands.

- Survey respondents indicated that sometimes the bus does not operate on McFarland Transit during its designated operating time.

- About half of McFarland Transit riders travel to Delano on Kern Regional Transit.

Stakeholders Key Issues:

- **The overriding issue: better transit service for the community**. According to the stakeholders, McFarland Transit should focus on ways to improve transit. Stakeholders pointed to key issues for improvement such as span of service, service days and more efficient trip scheduling.

- **Overall need for better public information.** The City needs to provide better public information. Stakeholders stated that the City needs to do a better job of getting the word out to the community that it serves.

- **More reliable service in McFarland.** McFarland's Dial-A-Ride services should focus on providing more reliable and consistent service. Dispatcher and drivers need to work together to make sure that no trips are missed.

- **Bus Drivers.** McFarland needs to address the challenges of training and keeping good bus drivers. The transit system needs to explore new avenues for bus driver retention.

Table 11
McFarland Transit Operation Data FY 2006-2007 and 2007-2008

Table 11

McFarland Transit Operation Data FY 2006-2007 and 2007-2008

McFarland Transit Operation Data, FY 2006-2007

	Ttl Psgrs	Rv Veh Mls	Rv Veh Hrs	Fares Collected	Bus Tickets Sold
July	1065	1,453.0	128.06	588.14	18.00
August	1311	1,811.0	183.32	913.81	576.00
September	771	1,224.0	124.98	436.11	-42.00
October	561	1,191.0	91.87	596.12	18.00
November	672	1,246.0	114.40	375.40	0.00
December	693	918.0	116.19	489.60	-18.00
January	884	1,343.0	140.17	670.09	0.00
February	531	988.0	85.01	474.62	0.00
March	730	1,187.0	134.03	463.61	0.00
April	829	1,386.0	140.08	540.86	0.00
May	939	1,420.0	141.59	740.42	0.00
June	1029	1,481.0	112.44	744.26	0.00
Mrcht Contribs.					
TOTALS:	10,015	15,648	1,512	$7,033.04	$552.00

McFarland Transit Operation Data, FY 2007-2008

Month	Ttl Psgrs	Rv Veh Mls	Rv Veh Hrs	Fares Collected	Bus Tickets Sold
July	1,601	1,471.76	186.47	863.78	18.00
August	1,270	1,646.00	157.16	786.05	0.00
September	1,149	1,513.00	137.39	828.91	18.00
October	1,314	1,588.88	180.05	885.72	0.00
November	671	1,181.57	116.55	605.01	0.00
December	686	1,064.00	104.08	517.00	0.00
January	1,218	1,428.00	150.18	958.62	-9.00
February	1,056	1,422.00	135.91	745.46	0.00
March	957	1,459.00	136.98	718.40	9.00
April	936	1,398.00	142.05	736.17	9.00
May	953	1,342.00	150.21	718.78	18.00
June	897	1,136.00	111.39	693.18	18.00
TOTALS:	9,968	14,167	1,510	$ 9,057.08	$ 81.00

Table 12
McFarland Transit Operation Data FY 2008-2009 and 2009-2010

Table 12
McFarland Transit Operation Data FY 2008-2009 and 2009-2010

McFarland Transit Operation Data, FY 2008-2009

Month	Ttl Psgrs	Rv Veh Mls	Rv Veh Hrs	Fares Collected	Bus Tickets Sold
July	833	1,099.00	99.11	601.24	9.00
August	890	1,037.00	94.04	650.10	9.00
September	1,354	1,756.00	143.88	971.24	9.00
October	1,110	629.00	141.61	784.71	27.00
November	721	1,123.00	99.53	518.22	0.00
December	550	1,007.38	97.05	448.41	0.00
January	681	1,287.00	95.66	509.68	0.00
February	637	1,203.00	102.15	510.06	9.00
March	658	1,409.00	116.89	544.20	0.00
April	575	1,018.35	105.71	452.76	0.00
May	684	1,244.00	105.12	512.58	0.00
June	724	1,372.00	110.14	548.63	0.00
TOTALS:	9,417	14,185	1,311	$ 7,051.83	$ 63.00

McFarland Transit Operation Data, FY 2009-2010

Month	Ttl Psgrs	Rv Veh Mls	Rv Veh Hrs	Fares Collected	Bus Tickets Sold
July	681	1,285.00	106.98	578.04	0.00
August	659	1,308.00	112.32	602.75	0.00
September	779	1,501.00	114.99	648.83	0.00
October	700	1,927.00	140.20	624.27	45.00
November	569	1,345.00	107.24	524.26	81.00
December	533	1,335.00	104.07	426.31	18.00
January	820	1,519.00	126.81	609.68	162.00
February	748	1,509.00	116.25	514.52	126.00
March	878	1,867.00	142.75	603.45	90.00
April	729	1,550.00	124.96	595.20	99.00
May	945	1,614.00	135.04	668.29	54.00
June	805	1,771.00	134.45	658.55	27.00
TOTALS:	8,846	18,531	1,466	$ 7,054.15	$ 702.00

Table 13

McFarland Transit Operation Data FY 2010- 2011

Table 13

McFarland Transit Operation Data FY 2010- 2011

McFarland Transit Operation Data, FY 2010-2011

Month	Ttl Psgrs	Rv Veh Mls	Rv Veh Hrs	Operating Days	Fares Collected	Bus Tickets Sold	Coupon Rides
July	710.00	1,680.00	113.71	19	538.18	9.00	0
August	951.00	1,885.00	139.68	22	583.17	243.00	0
September	1,430.00	1,294.00	132.65	19	647.95	153.00	433
October	1,574.00	2,149.00	138.90	21	655.40	207.00	488
November	1,766.00	1,872.00	178.31	19	739.24	117.00	476
December	1,626.00	1,735.00	173.48	17	659.86	90.00	254
January	2,103.00	2,097.00	222.40	20	910.63	108.00	226
February	1,494.00	1,560.80	164.01	19	732.68	72.00	139
March	1,498.00	1,559.70	170.53	22	764.16	27.00	40
April	1,182.00	1,147.20	136.42	21	750.23	18.00	55
May	1,542.00	1,690.00	165.98	21	1,039.71	-	58
June							
TOTALS:	15,876	18,670	1,736	220	$ 8,021.21	$ 1,044.00	2,169

APPENDIX “G”

Full Size Planning Maps

<u>APPENDIX "H"</u>
Community Outreach Data

Community Outreach

The City of McFarland in conjunction with updating its Circulation Element completed a community wide survey regarding local transportation. These efforts were made possible through an Environmental Justice Grant from The California Department of Transportation. Information, comments, general feedback received from residents/community members are reflected in the policy goals and issues identified in the Circulation Element. The outreach periods were conducted in a manner that were staggered to allow design engineers time to update drafts of the Circulation Element that reflected community input. As highlighted above, the all the policy goals and issues raised in the Circulation Element were provided from the residents/community members of McFarland.

RM Associates, the City's engineering consultants on this project, presented to the City Council an updated on the findings of the community based outreach, and provided them with the input that was being echoed from the residents. City Council and City Staff made note of the comments and instructed RMA to continue with their outreach and include those comments in a manner that is consisted with the development of the Circulation Element.

As a result of the Circulation Element, City Council and staff was made aware of the overall theme of concerns from its residents. Many residents expressed gratitude for the City, in taking the time to learn first-hand of their needs and concerns. As such, City Staff will be working to alleviate the concerns of residents by focusing on obtaining additional grant funds to update its streets.

Methodology

In order to maximize responses from the residents, the survey was conducted in Spanish and English by bilingual surveyors. A focal point in the survey was to obtain as much feedback as possible from the population within the City.

Following development of a questionnaire/survey form, approved by Caltrans, the surveyors reviewed the residential areas on a map; examined the data provided, and canvassed representative areas to assure adequate coverage of the entire City.

The time of canvassing was also staggered to ensure that the timing of survey would not leave out any one segment of the community. A survey instrument was developed with pertinent information, including size of household and corresponding questions related to transportation. The format was such that an overwhelming number of respondents were comfortable providing information. Following completion of the questionnaire, the data was then analyzed.

The following information provides an overview of the information gathered from the community survey and represented in the Circulation Element.

Exhibit 1.0 – Respondents (Male and Female)

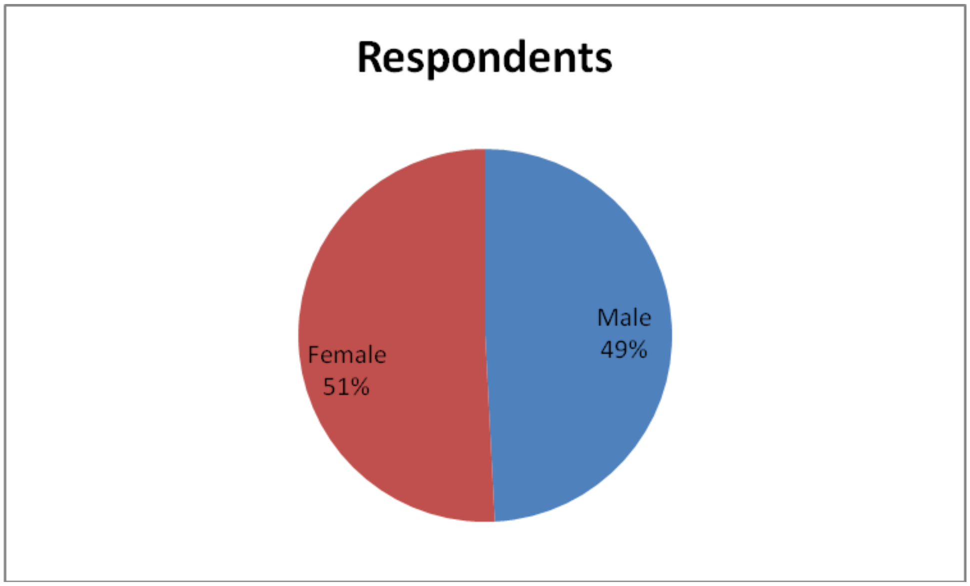


Exhibit 1.1 Respondents (Age)

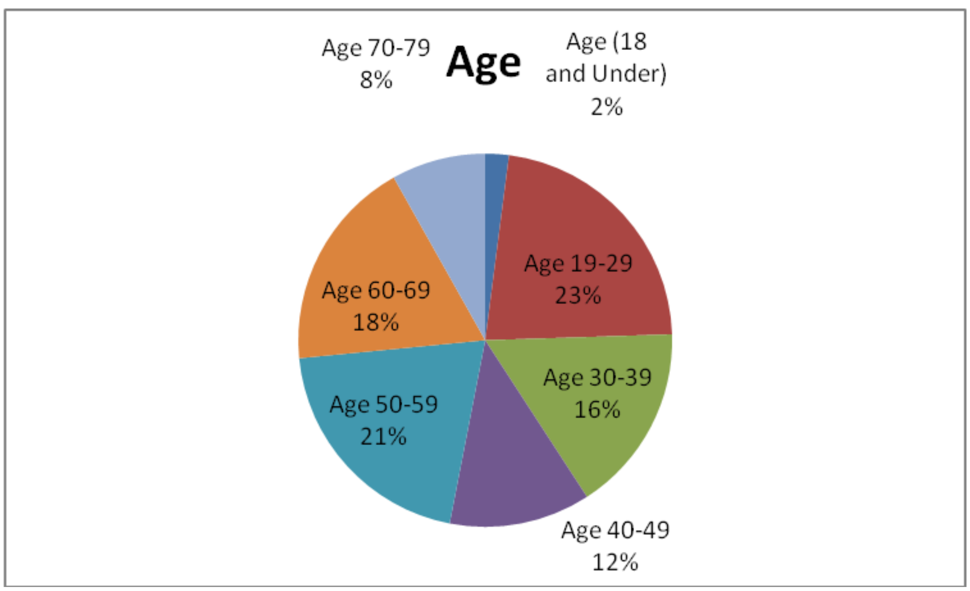


Exhibit 1.2 Respondents (Ethnicity)

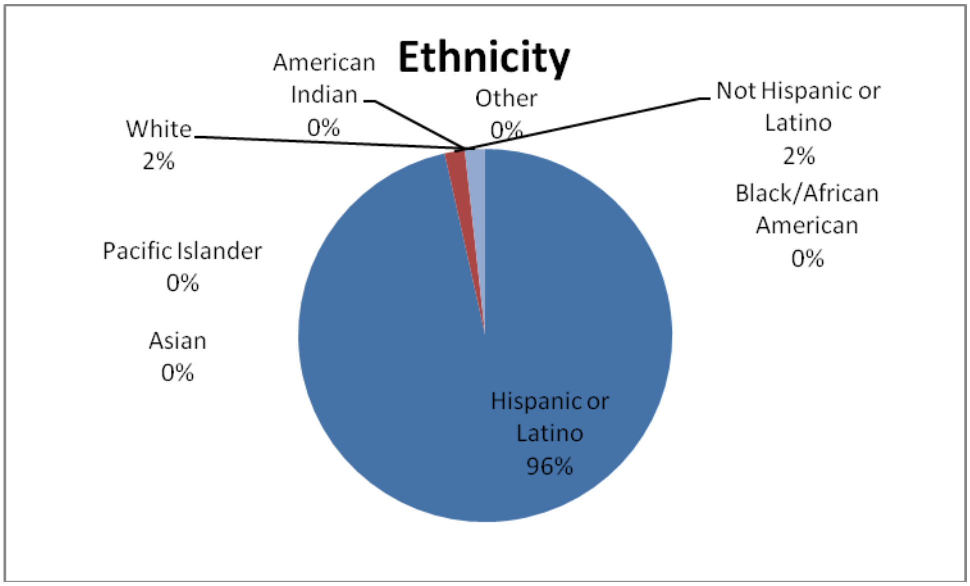


Exhibit 1.3 Respondents (Visual Disability)

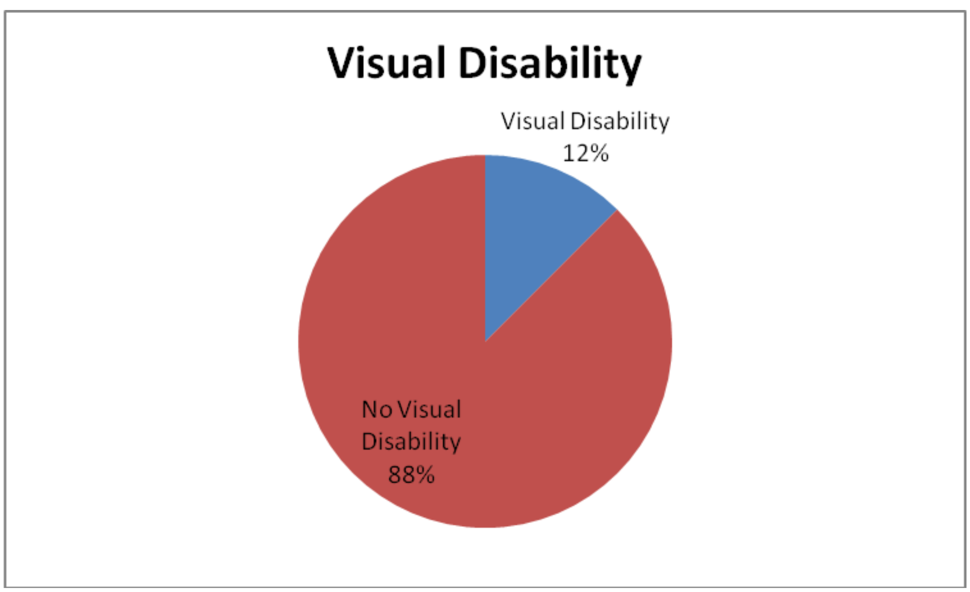


Exhibit 1.4 Respondents (Language)

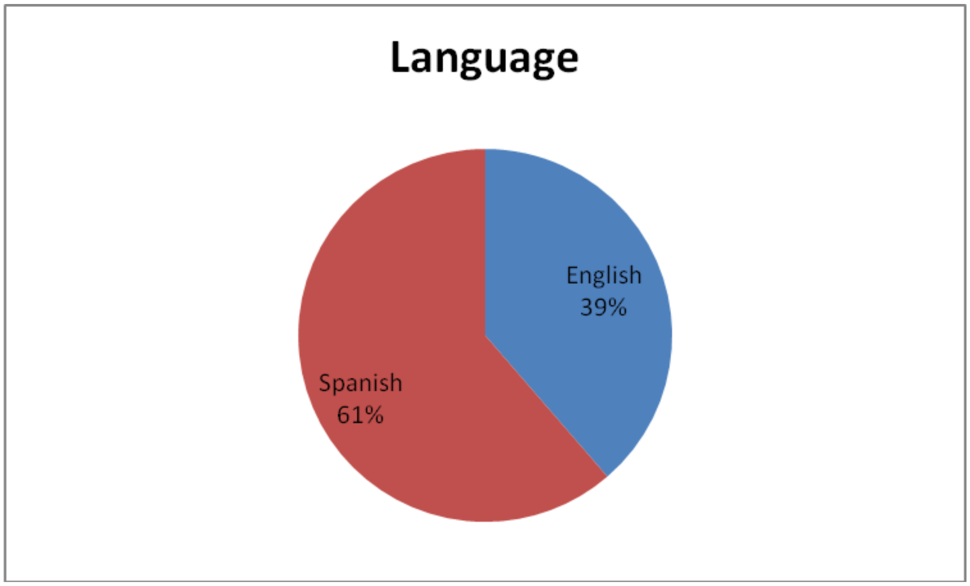


Exhibit 1.5 Respondents (Income)

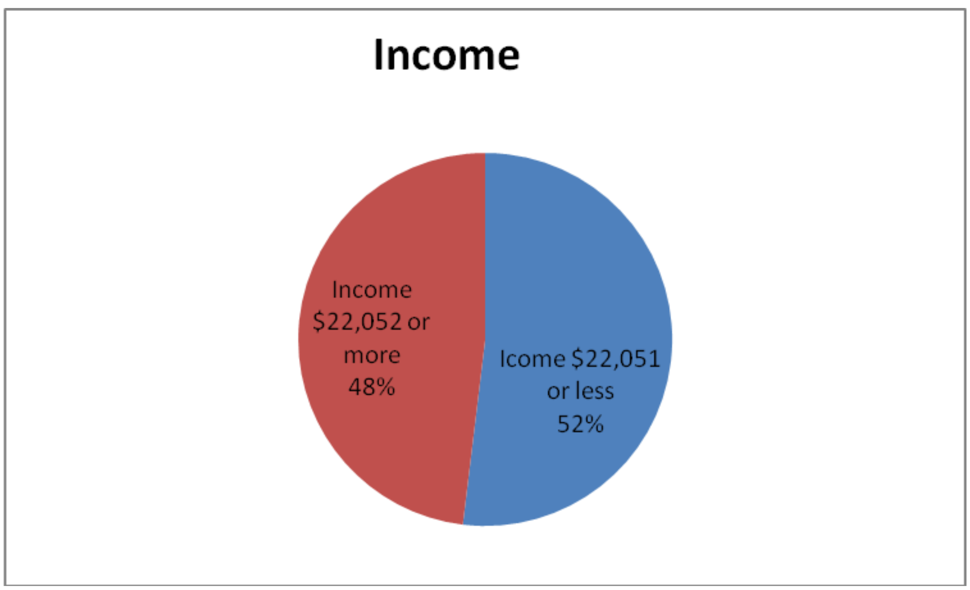


Exhibit 1.7 Main Form of Transportation

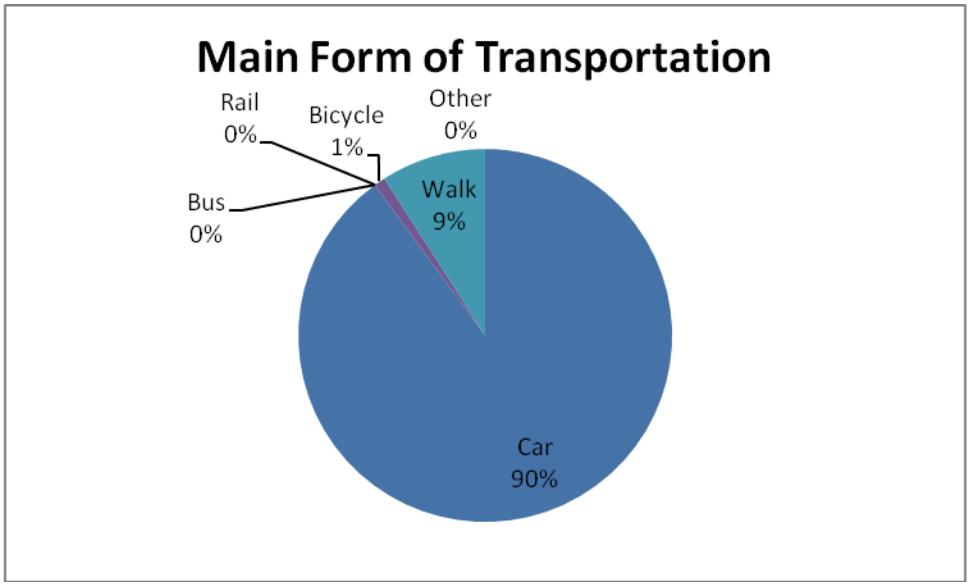
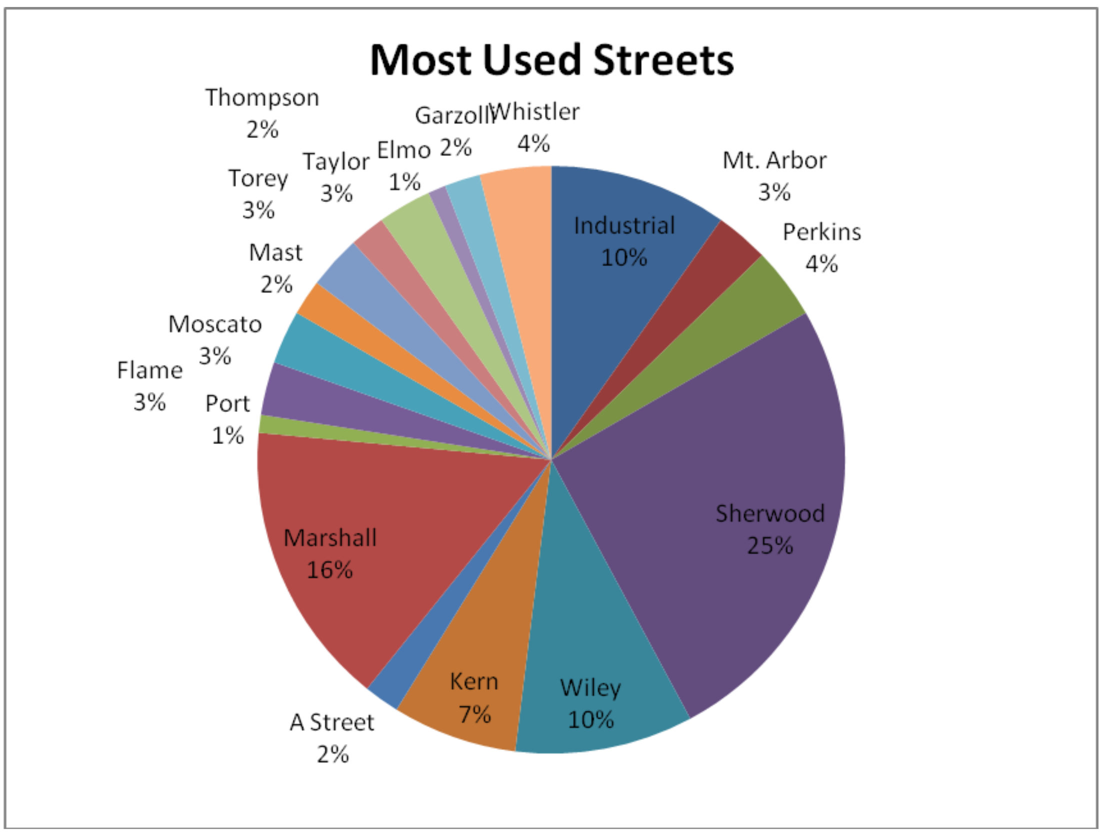


Exhibit 1.8 Most Used Streets/Roads



The following comments reflect the most popular responses provided from residents when asked the following open-ended questions.

Table 1.0 What are you specific comments on the City's Transportation?

"There is a lot of traffice on my street (Kern). People need to bring in their transh cans, it makes the streets look bad."
"Calm, everything is ok."
"No Comment"
"It's pretty good, there are a lot of potholes though"
"I like when I see that the Police are on patrol."
"Garzolli needs to be improved, it's very bumpy"
"Need more street bumps to slow traffic"
"A lot of cars drive fast and there are childing playing in the street"
"Improve lighting"
"It's hard to see the signs at night"

Table 1.1What do you think are the major safety concerns when you walk and/or bike?

"No concerns"
"Better street lighting"
"Too many fast cars"
"Need speed bumps"
"After work the traffic gets bad, everyone is driving home fast"

Table 1.2 What would you like to see improved?

" The drainage needs to be improved because the water doesn't drain and it just collects"
"More stop signs"
"Improve the street lighting"
"Find a way to slow down traffic on the residential streets"
"Need to find a better way to get dogs off street in a humane and gentle way"
"Street sweeper can't do a good job because everyone is always parking their cars outside"
"Everything is ok"
"Improve access to 99. I've lived here a long time and still get confussed."

APPENDIX "I"

Accidents & Emergency Responders

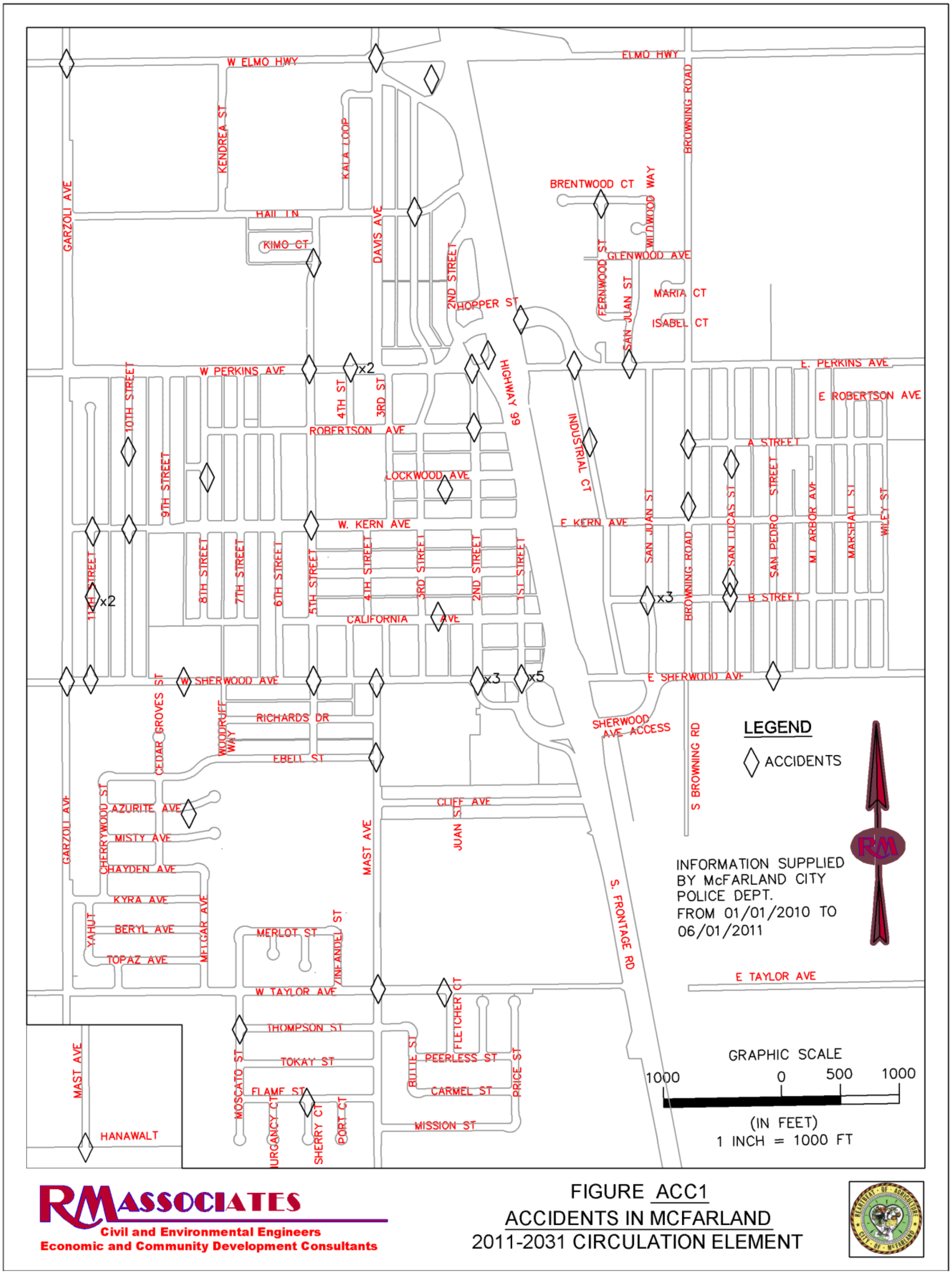
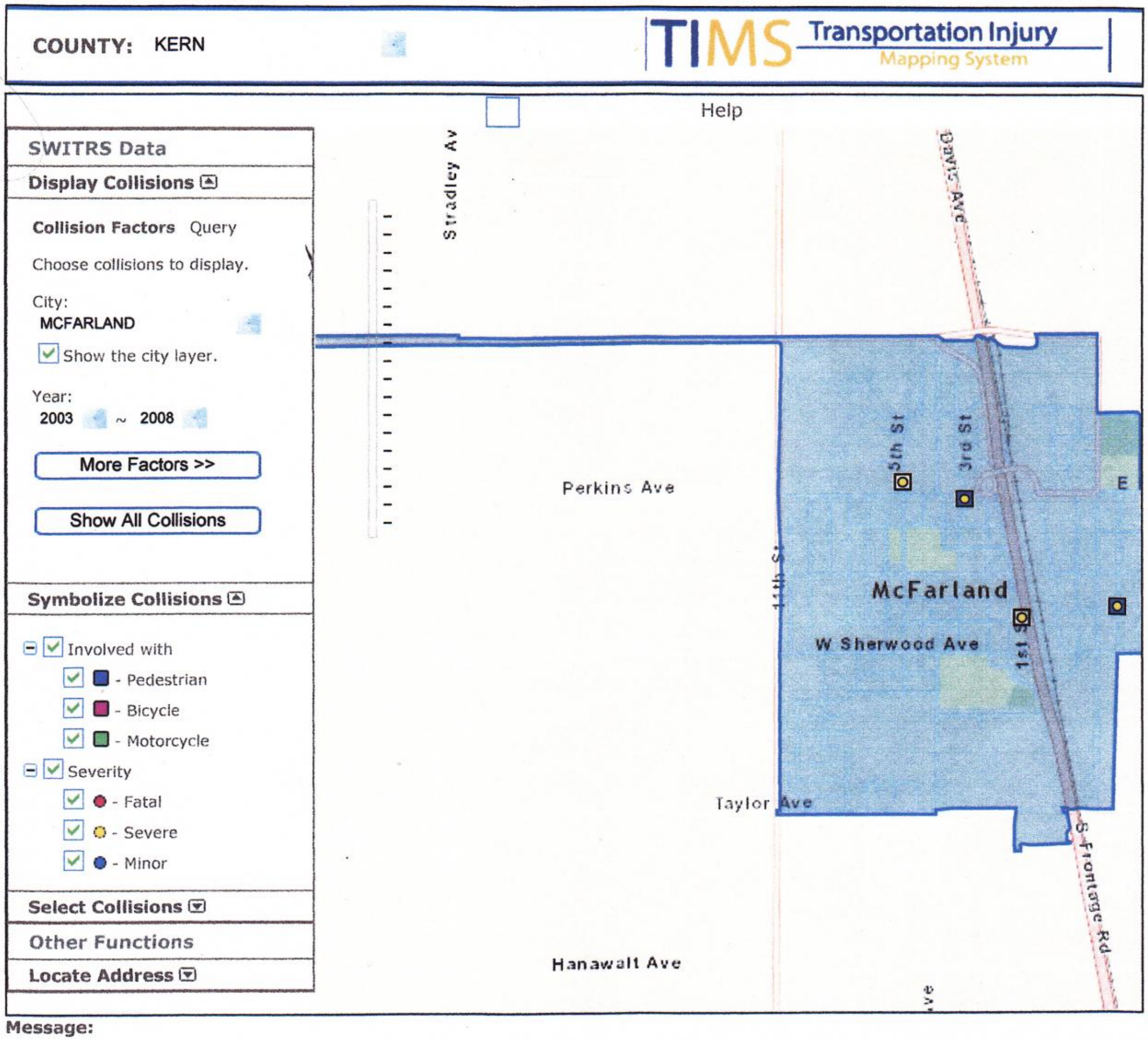


FIGURE ACC1
ACCIDENTS IN McFARLAND



ACCIDENTS IN MCFARLANFIGURE AC2
ACCIDENT LOCATIONS-TIMS

TABLE 8A Collisions by City, County, and Road Classification, 2004

County	City	TOTAL Fatal	TOTAL Injury	TOTAL Property Damage	Alcohol Involved Fatal	Alcohol Involved Injury	Pedestrian Involved Fatal	Pedestrian Involved Injury	Bicycle Involved Fatal	Bicycle Involved Injury	Motorcycle* Involved Fatal	Motorcycle* Involved Injury
	Uninc. State Highways	4	94	102	2	7		3		3		9
	County Roadways	3	44	44	1	6				1	2	11
Kern		121	3,722	6,014	39	472	16	188	2	148	8	138
	Arvin		29	84		4		7		5		
	Bakersfield	22	1,144	994	15	151	6	72		56	2	31
	Bear Valley Springs		5	7		1						
	California City		35	34		5				4		2
	Delano		125	355		22		16		6		3
	Maricopa		1			1						
	McFarland		11	15		1		3				
	Ridgecrest	2	56	70		3	1	6	1	6		
	Shafter		26	100		4		4		3		
	Taft	2	20	55	1	2		3		2		
	Tehachapi		16	64		1		1		1		1
	Wasco		37	104		5		1		5		
	Unincorporated	95	2,217	4,132	23	272	9	75	1	60	6	101
	Uninc. State Highways	56	1,096	1,788	7	105	3	12	1	5	2	40
	County Roadways	39	1,121	2,344	16	167	6	63		55	4	61
Kings		29	636	971	6	75	1	27		31		21
	Avenal		3	13						1		
	Corcoran		12	68				1		1		
	Hanford		219	192		14		16		20		5
	Lemoore		58	158		2		3		4		
	Unincorporated	29	344	540	6	59	1	7		5		16
	Uninc. State Highways	13	156	233	1	22		2		1		8
	County Roadways	16	188	307	5	37	1	5		4		8
Lake		15	330	535	4	75	1	8		7	2	28
	Clearlake	2	43	97	1	7						4
	Lakeport		22	44		2				4		1
	Unincorporated	13	265	394	3	66	1	8		3	2	23
	Uninc. State Highways	9	168	215	1	29	1	1		1	1	9
	County Roadways	4	97	179	2	37		7		2	1	14
Lassen		15	169	368	3	26		8		6	1	17
	Susanville		31	131		5		5		3		4
	Unincorporated	15	138	237	3	21		3		3	1	13
	Uninc. State Highways	11	105	169	3	12		1				8
	County Roadways	4	33	68		9		2		3	1	5
Los Angeles		705	59,955	92,535	237	4,998	187	5,192	23	3,191	70	1,996
	Agoura Hills		110	216		15		3		5		8
	Alhambra	4	461	964	1	20	1	32	1	24		10
	Arcadia	3	312	661	2	19	2	17		10		5
	Artesia		123	402		3		4		9		3
	Avalon		7	9		1				1		
	Azusa	4	257	524	1	21	2	15		23		9
	Baldwin Park	7	422	953	2	31	2	29	2	15	2	14
	Bell	2	180	474	2	14	1	21		18		4
	Bell Gardens		122	153		13		21		18		1
	Bellflower	4	406	998		30		30		30	1	11
	Beverly Hills	1	380	7		12		56		24		5
	Bradbury			4								
	Burbank	2	613	651	1	35		39		42		11
	Calabasas		106	288		12				2		3
	Carson	7	464	1,177	1	41	1	31	1	9	1	21
	Cerritos	5	475	1,044	1	19		13		11		14
	Claremont	3	144	263	1	13	2	8		6		2
	Commerce	2	288	852		29		11		7		7
	Compton	7	467	784	2	50	1	56	1	34		20
	Covina	1	266	531		14	1	12		15		11
	Cudahy		43	70		5		10		4		3
	Culver City	1	275	311	1	18		20		17		17
	Diamond Bar	6	446	1,146	1	39		7		4		14
	Downey	6	687	1,334	2	54	3	37		40		24
	Duarte	1	86	201	1	6		2		2		4
	El Monte	4	664	1,138		59	2	47		92		11
	El Segundo		65	117		4		4		3		1
	Gardena	5	352	187		49	4	31		15		3

TABLE 6

TABLE 8A COLLISIONS BY COUNTY, CITY, AND ROAD CLASSIFICATION - 2005

						COLLISIONS					
COUNTY CITY ROAD CLASSIFICATION	Total Fatal	Total Injury	Total Property Damage	Alcohol Involved Fatal	Alcohol Involved Injury	Pedestrian Involved Fatal	Pedestrian Involved Injury	Bicycle Involved Fatal	Bicycle Involved Injury	Motorcycle* Involved Fatal	Motorcycle* Involved Injury
Delano	3	126	421	1	20	1	13		7		3
McFarland		13	34		2		4				
Ridgecrest		54	69		4		5		3		
Shafter	2	33	99		2		6		2		
Taft	1	25	54		1	1	1		1		
Tehachapi		23	68		1		1		4		
Wasco	1	34	149		4		6		4		1
Unincorporated	111	2,312	4,420	32	270	10	86	2	68	7	122
Uninc. State Highways	58	1,122	1,936	15	118	4	14		6	5	49
County Roadways	53	1,190	2,484	17	152	6	72	2	62	2	73
Kings	43	684	1,034	20	78	3	26		23	3	27
Avenal			12								
Corcoran		21	77		1		1		4		
Hanford	6	216	248	2	18	2	15		12	1	7
Lemoore		71	140		10		7		3		2
Unincorporated	37	376	557	18	49	1	3		4	2	18
Uninc. State Highways	18	182	240	6	21		1			2	11
County Roadways	19	194	317	12	28	1	2		4		7
Lake	12	357	530	6	72	2	12		16		33
Clearlake	2	44	90		6	1	4		5		2
Lakeport		14	64		2				2		
Unincorporated	10	299	376	6	64	1	8		9		31
Uninc. State Highways	7	188	217	3	30	1	3		4		16
County Roadways	3	111	159	3	34		5		5		15
Lassen	10	156	318	3	19		4		5	1	16
Susanville		26	93		3		1		5		2
Unincorporated	10	130	225	3	16		3			1	14
Uninc. State Highways	8	91	178	1	9		2			1	5
County Roadways	2	39	47	2	7		1				9
Los Angeles	698	58,310	92,640	240	4,996	206	4,941	25	2,885	74	1,928
Agoura Hills	2	110	234	1	11	1	4		4		4
Alhambra	4	408	893		22	1	32		20	1	7
Arcadia	1	300	589		14	1	18		25		7
Artesia		113	399		4		7		8		2
Avalon		6	12								
Azusa	5	275	526	3	33	2	11	1	15	1	8
Baldwin Park	6	377	961	3	28	3	31	1	25		14
Bell	4	150	466	3	10	2	11		8		7
Bell Gardens		131	132		13		22		15		1
Bellflower	5	416	1,069	4	31	2	27	1	33		10
Beverly Hills	4	409	5	4	25		54		32	1	15
Burbank	5	569	620	3	38	1	41		36		8
Calabasas	1	106	218		5		2		2		7
Carson	8	512	1,292	3	46		32	1	22	2	17
Cerritos	2	444	956	2	35		12		9		28
Claremont	3	160	286	1	12	1	8	1	7		4
Commerce	3	252	855	2	19		3		4	1	8
Compton	9	397	689	2	34	1	42		16		17
Covina	2	183	422	1	8	2	20		12		8
Cudahy	2	33	67	1	3		5		4		1
Culver City	4	307	293	1	22	1	17		17		17
Diamond Bar	5	405	1,137	1	29	1	6		3		17
Downey	6	698	1,415	3	51	2	40	1	34	1	22
Duarte	2	88	209		6		3		6		4
El Monte	4	601	1,119	1	56	1	52	1	52		14
El Segundo		76	223		4		10		2		3
Gardena	2	332	197		39	2	19		18		
Glendale	8	767	2,610	4	46	1	108		41		34
Glendora		229	632		16		9		14		9
Hawaiian Gardens		49	113		6		9		6		
Hawthorne	1	376	440	1	41	1	30		36		9
Hermosa Beach		49	100		6		10		5		2
Hidden Hills			1								
Huntington Park	3	184	320	1	28	1	46		23	1	3
Industry	4	321	830	3	19		5		7		12
Inglewood	9	559	612	4	50	2	57		21		22
Irwindale	5	245	458		24	1	3		6		8
La Canada-Flintridge		54	112				3		1		3

TABLE 7

TABLE 8A COLLISIONS BY COUNTY, CITY, AND ROAD CLASSFICATION - 2006

COUNTY CITY ROAD CLASSIFICATION	Total Fatal	Total Injury	Total Property Damage	Alcohol Involved Fatal	Alcohol Involved Injury	COLLISIONS Pedestrian Involved Fatal	Pedestrian Involved Injury	Bicycle Involved Fatal	Bicycle Involved Injury	Motorcycle* Involved Fatal	Motorcycle* Involved Injury
Bear Valley Springs		5	7		1						
California City		36	56		2		1				4
Delano	6	136	437	3	11	2	16		4		3
Maricopa			1								
McFarland		8	27		1		1				
Ridgecrest	2	51	85		6		4		4		
Shafter	3	31	105	1	3	1	6		1		
Taft	3	38	65	1	2		4		3		2
Tehachapi	2	7	12		1		1				
Wasco	1	41	119		6	1	8		3		
Unincorporated	116	2,252	4,501	37	316	11	72	3	37	8	133
Uninc. State Highways	74	1,059	1,920	18	131	4	11	1	3	2	50
County Roadways	42	1,193	2,581	19	185	7	61	2	34	6	83
Kings	35	672	1,208	13	88		29		19	4	28
Avenal	1	3	8		0		1		1		
Corcoran		13	74		2		1		2		
Hanford	2	228	387		14		14		13	1	9
Lemoore	2	69	154	1	9		8		3		5
Unincorporated	30	359	585	12	63		5			3	14
Uninc. State Highways	17	176	255	7	32		1				6
County Roadways	13	183	330	5	31		4			3	8
Lake	16	320	466	5	99	2	17		9	3	33
Clearlake	3	44	81	3	9	2	3		3		5
Lakeport		17	56		4		2				1
Unincorporated	13	259	329	2	86		12		6	3	27
Uninc. State Highways	12	162	188	1	48		5		2	2	12
County Roadways	1	97	141	1	38		7		4	1	15
Lassen	9	141	339	3	21		6		3	1	9
Susanville		19	92		1		3				
Unincorporated	9	122	247	3	20		3		3	1	9
Uninc. State Highways	6	86	180	1	9		1		2		7
County Roadways	3	36	67	2	11		2		1	1	2
Los Angeles	748	57,069	92,388	276	5,057	214	4,904	29	2,906	78	2,168
Agoura Hills		81	228		11		4		3		1
Alhambra	6	436	933	2	30	1	36	1	37	1	11
Arcadia	4	266	608	3	18	1	21		16		2
Artesia		124	376		3		7		6		8
Avalon		15	20		4		3		5		
Azusa	1	275	573		29		17		27		15
Baldwin Park	4	334	813	1	32	2	14		20	1	21
Bell	6	134	522	2	15	1	9		9	1	3
Bell Gardens	1	98	107		7	1	14		14		2
Bellflower	1	364	998		39		32		22		12
Beverly Hills	7	370	8	3	29	3	62	1	22	1	10
Bradbury		1	2						0		
Burbank	8	547	668	3	33	1	41		28		12
Calabasas	2	89	216		7				3		7
Carson	5	459	1,346	2	43		32		18		19
Cerritos	2	391	1,011	1	23	1	11		11		17
Claremont	3	135	256		15	1	6		10		2
Commerce	2	279	921	2	21	1	10		5		10
Compton	9	382	824	2	33	2	33		16	4	14
Covina	2	141	130	1	12	1	10		15		6
Cudahy	1	27	50	1	3		7		3		1
Culver City	5	258	285	3	19	3	27		16		24
Diamond Bar	3	360	1,159	1	31	1	12		2		19
Downey	12	672	1,239	5	60	5	37	1	30		24
Duarte	2	86	182	1	3		4		3		7
El Monte	7	534	1,111	2	51	4	44		57	1	21
El Segundo		84	276		4		8		5		5
Gardena	3	331	199	3	42	1	32		26		2
Glendale	6	774	2,283	2	45	3	102		45	1	27
Glendora	2	249	630	2	26		11		15		11
Hawaiian Gardens	1	45	129		4	1	3		8		1
Hawthorne	6	341	429	1	36	2	33		25	2	18
Hermosa Beach	2	42	96	1	7	1	10		8		1
Hidden Hills		1	6						0		
Huntington Park	4	184	330	1	17	3	37		14		6

TABLE 8

TABLE 8A COLLISIONS BY COUNTY, CITY, AND ROAD CLASSFICATION - 2007

COLLISIONS

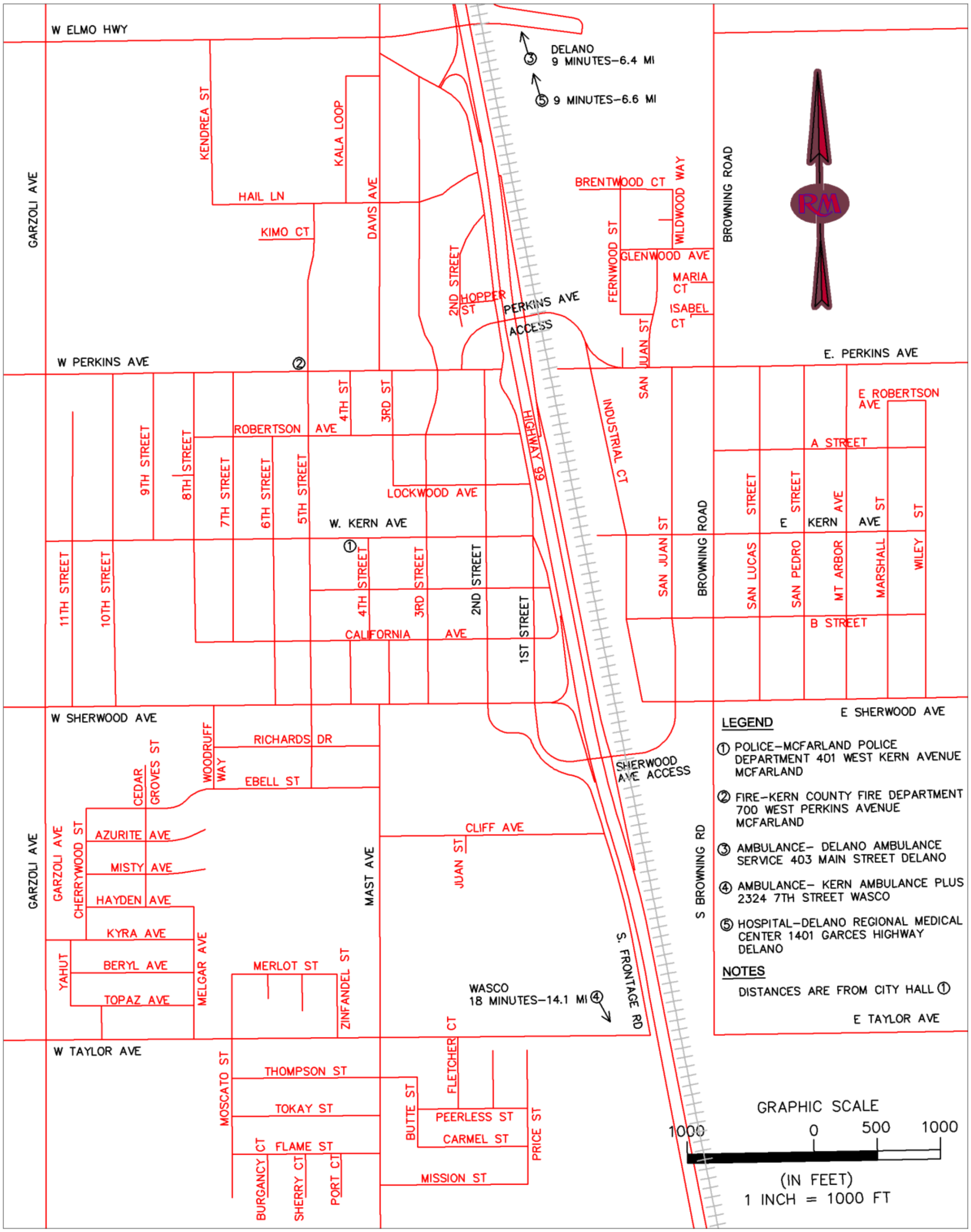
COUNTY	CITY ROAD CLASSIFICATION	Total Fatal	Total Injury	Total Property Damage	Alcohol Involved Fatal	Alcohol Involved Injury	Pedestrian Involved Fatal	Pedestrian Involved Injury	Bicycle Involved Fatal	Bicycle Involved Injury	Motorcycle* Involved Fatal	Motorcycle* Involved Injury
	Crescent City	1	18	32		1	1	3		1		1
	Unincorporated	8	109	216	3	19	2	2		5		9
	Uninc. State Highways	7	64	104	3	8	2					6
	County Roadways	1	45	112		11		2		5		3
El Dorado		30	863	1,307	11	159	1	30		36	9	117
	Placerville	3	55	167		8	1	2		3	1	
	South Lake Tahoe	1	119	65		18		14		12	1	5
	Unincorporated	26	689	1,075	11	133		14		21	7	112
	Uninc. State Highways	13	248	321	4	41		1		5	4	32
	County Roadways	13	441	754	7	92		13		16	3	80
Fresno		141	3,783	6,356	56	503	18	209	4	147	13	202
	Clovis	1	239	557		21		14		26		2
	Coalinga		12	65		1		2		1		
	Firebaugh		5	15		1						
	Fowler		30	46		2				1		2
	Fresno	36	1,677	2,413	13	207	10	133	3	83	2	75
	Huron		1	6								
	Kerman		12	32		1		2		1		2
	Kingsburg		32	108		5		3		8		
	Mendota	2	21	52	1	6	1	3		1		2
	Orange Cove		8	18		1		2		1		1
	Parlier		23	57		4		3				
	Reedley		57	178		4		7		5		
	San Joaquin		2	6								
	Sanger		37	134		2		5				1
	Selma	2	54	316	1	7	1	4		3		1
	Unincorporated	100	1,573	2,353	41	241	6	31	1	17	11	116
	Uninc. State Highways	33	466	804	9	62	1	1			4	42
	County Roadways	67	1,107	1,549	32	179	5	30	1	17	7	74
Glenn		10	131	256	4	20		6		6	1	4
	Orland		33	58		4		2		2		1
	Willows		12	29						3		
	Unincorporated	10	86	169	4	16		4		1	1	3
	Uninc. State Highways	4	43	102	2	6		2				2
	County Roadways	6	43	67	2	10		2		1	1	1
Humboldt		23	770	1,530	5	130	2	35		61	2	46
	Arcata	1	44	115	1	4		7		15		2
	Blue Lake		1	1		1						
	Eureka	3	288	582		23	2	20		24	1	10
	Fortuna		29	70		2		1		4		1
	Rio Dell		2	13								
	Unincorporated	19	406	749	4	100		7		18	1	33
	Uninc. State Highways	16	211	388	4	41		1		8		17
	County Roadways	3	195	361		59		6		10	1	16
Imperial		35	585	856	13	66	2	25		26	5	24
	Brawley	1	24	29	1	5		5		5		
	Calexico		40	168		8		5		5		1
	El Centro	1	129	104	1	9	1	13		13		2
	Imperial		38	91		4		1		2		1
	Unincorporated	33	354	464	11	40	1	1		1	5	20
	Uninc. State Highways	22	229	254	7	22	1				2	14
	County Roadways	11	125	210	4	18		1		1	3	6
Inyo		9	143	170	2	22		6		7	1	32
	Bishop		17	18		1		3		1		1
	Unincorporated	9	126	152	2	21		3		6	1	31
	Uninc. State Highways	6	74	97	2	6		1		2		18
	County Roadways	3	52	55		15		2		4	1	13
Kern		142	3,615	6,403	42	507	17	207	2	130	14	202
	Arvin	1	26	136		6	1	7		5		
	Bakersfield	24	1,126	1,055	8	141	4	94	2	52	4	54
	Bear Valley Springs		3	4								
	California City	1	36	48		2		1				2
	Delano	7	116	454	3	27	2	21		8		2
	McFarland		3	15		1		1				
	Ridgecrest		52	72		6		3		5		5
	Shafter	1	29	104	1	3		4				
	Taft	1	24	51		6	1	2				2
	Tehachapi	1	12	43				1		1	1	1
	Wasco	1	38	128		4	1	7		4		1
	Unincorporated	105	2,150	4,293	30	311	8	66		55	9	135
	Uninc. State Highways	59	1,007	1,840	16	138	4	8		6	4	55
	County Roadways	46	1,143	2,453	14	173	4	58		49	5	80
Kings		26	646	1,024	7	76	3	29		18		27
	Avenal		6	5				1		1		
	Corcoran	1	26	86	1	3	1	2		3		
	Hanford	3	190	291	1	14	1	10		10		6

TABLE 9

TABLE 8A COLLISIONS BY COUNTY, CITY, AND ROAD CLASSIFICATION - 2008

COUNTY	CITY ROAD CLASSIFICATION	Total Fatal	Total Injury	Total Property Damage	Alcohol Involved Fatal	Alcohol Involved Injury	COLLISIONS Pedestrian Involved Fatal	Pedestrian Involved Injury	Bicycle Involved Fatal	Bicycle Involved Injury	Motorcycle* Involved Fatal	Motorcycle* Involved Injury
	Bear Valley Springs			3								
	California City		29	19		11		1		2		2
	Delano	1	85	450		7	1	7		10		1
	Maricopa			1								
	McFarland		2	7		1		1				
	Ridgecrest	1	73	143		14		10	1	10		9
	Shafter	2	34	108	2	4	1	1		3		
	Taft	1	31	57	1	3	1	2		1		4
	Tehachapi		40	64		5		4		2		2
	Wasco	1	39	130		5	1	6		1		1
	Unincorporated	68	1,979	3,962	18	276	6	76	1	44	9	157
	Uninc. State Highway:	42	918	1,701	10	102	4	13		7	4	46
	County Roadways	26	1,061	2,261	8	174	2	63	1	37	5	111
Kings		24	529	1,025	10	74	1	32		23	2	24
	Avenal	1	11			1		2		1		
	Corcoran		13	100		3		4				
	Hanford	4	177	293		17	1	17		16	1	5
	Lemoore	2	59	158	1	4		4		5		4
	Unincorporated	17	269	474	9	49		5		1	1	15
	Uninc. State Highway:	6	110	181	4	16						6
	County Roadways	11	159	293	5	33		5		1	1	9
Lake		14	292	365	3	64	1	9		6	3	41
	Clearlake	2	27	34		9				3		
	Lakeport		18	22		1				1		3
	Unincorporated	12	247	309	3	54	1	9		2	3	38
	Uninc. State Highway:	12	146	169	3	23	1	5		2	3	22
	County Roadways		101	140		31		4				16
Lassen		8	124	310	1	16		5		4		13
	Susanville		16	109		1		3		2		
	Unincorporated	8	108	201	1	15		2		2		13
	Uninc. State Highway:	8	75	135	1	7				1		6
	County Roadways		33	66		8		2		1		7
Los Angeles		667	52,229	82,766	258	4,832	214	4,985	33	3,315	114	2,934
	Agoura Hills	1	82	187		11				6		6
	Alhambra	6	343	1,111	2	16	4	40		28		13
	Arcadia	2	244	322		7	1	16		15		6
	Artesia	1	87	226		3		4		8		4
	Avalon	1										
	Azusa	4	251	332	2	29	3	15	1	21		13
	Baldwin Park	4	289	690	2	30		21		7	2	25
	Bell	2	166	432	1	13		13	1	19		6
	Bell Gardens		70	111		3		10		9		
	Bellflower	2	344	780	1	30		25		26		20
	Beverly Hills	1	359	8	1	20		55		25		26
	Burbank	5	548	624	2	37		46		41	3	9
	Calabasas	1	83	215		10				4	1	4
	Carson	10	447	1,259	6	28	3	31		16	3	24
	Cerritos	3	393	923	1	37		16		18	1	22
	Claremont	3	139	205	1	19		15		16		3
	Commerce	7	234	887	3	22	1	4		3	3	14
	Compton	9	425	791	4	38		45		34	2	32
	Covina	5	134	98		10		12		14	2	7
	Cudahy		35	80		7		6		1		
	Culver City	3	267	275	2	25	2	23		24		15
	Diamond Bar	6	294	937	3	17	1	8	1	1		24
	Downey	6	633	1,104	1	44		40		27		28
	Duarte		70	167		1		5		3		6
	El Monte	8	483	735	3	67	3	53	2	55	2	26
	El Segundo	1	83	177	1	8		13		7	1	1
	Gardena	4	210	115	2	31		18		16		9
	Glendale	6	725	2,302		45	3	91		45		39
	Glendora	4	252	514	2	26	1	13		23		22
	Hawaiian Gardens		44	110		5		12		3		2
	Hawthorne	2	328	426	1	35	2	49		30		18
	Hermosa Beach		41	109		8		10		5		4
	Hidden Hills		1	3								
	Huntington Park	1	170	248		31	1	30		22		7
	Industry	3	240	767	2	14		4		8	1	17
	Inglewood	8	575	459	3	48	2	65		37	1	29
	Irwindale	2	159	318	1	13		1				13

TABLE 10



RM ASSOCIATES
Civil and Environmental Engineers
Economic and Community Development Consultants

FIGURE ER

MCFARLAND EMERGENCY RESPONDERS

2011-2031 CIRCULATION ELEMENT

APPENDIX “J”

Sewer and Water

FIGURE PTS
PROPOSED TRUNK SEWER

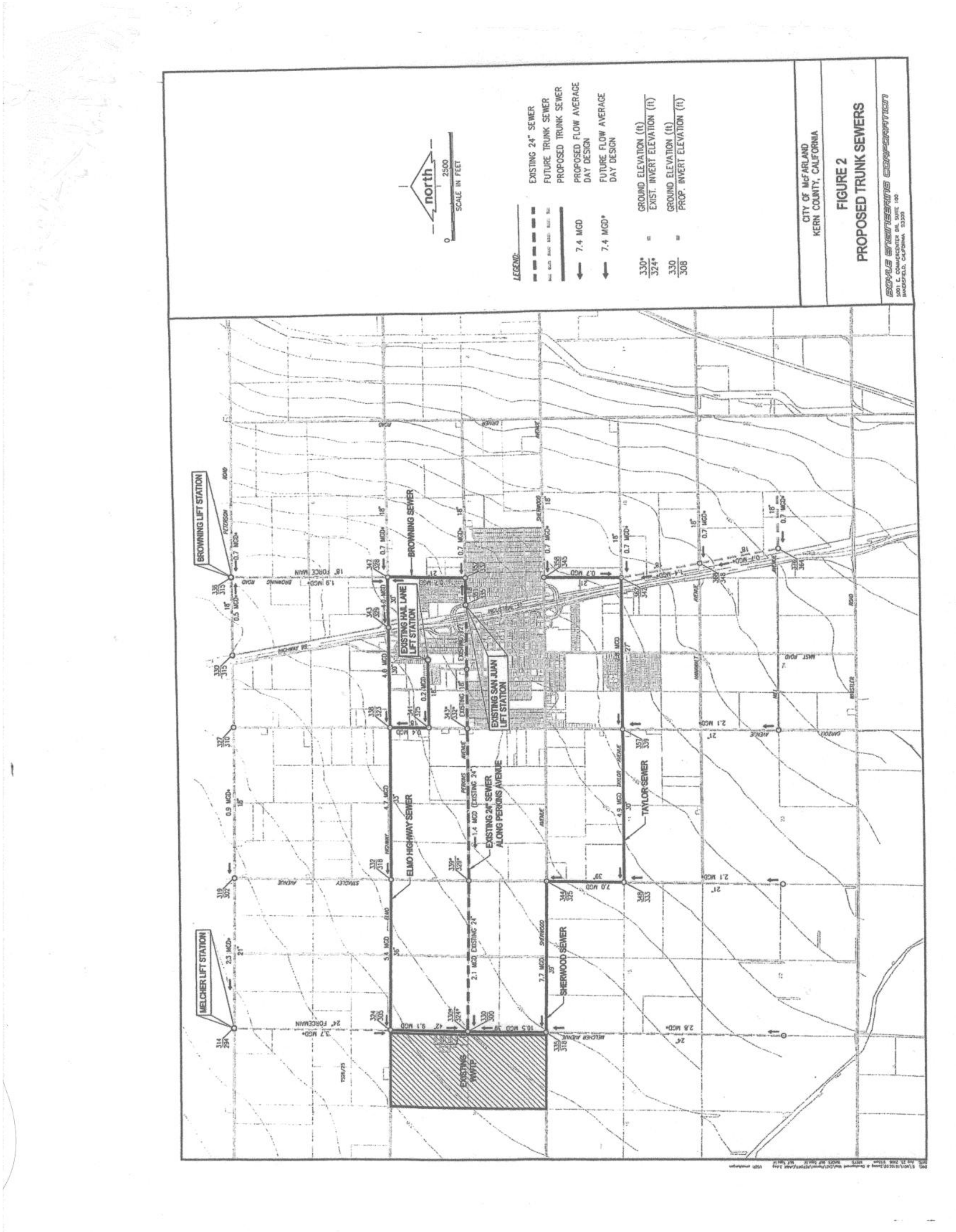


FIGURE AGP-W
ASSUMED GROWTH PATTERN