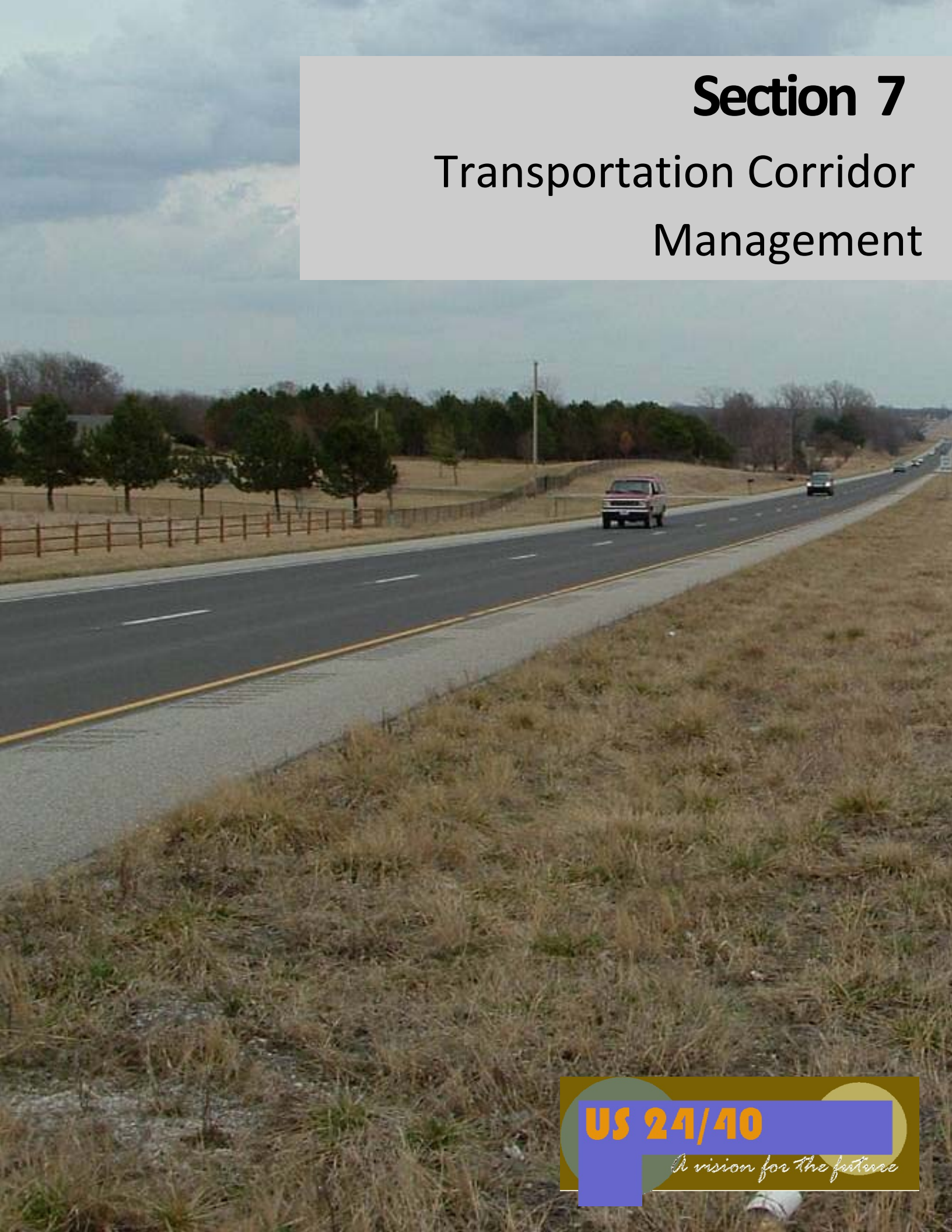
Section 7

Transportation Corridor Management



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Transportation Corridor Management

Introduction

This section describes the recommended transportation management strategies and actions necessary to maintain both the safety and mobility of the corridor. It outlines guiding access management best practices, and how they can be applied to the corridor, both as interim and long-range improvements.

Access and Traffic Management Plan Overview

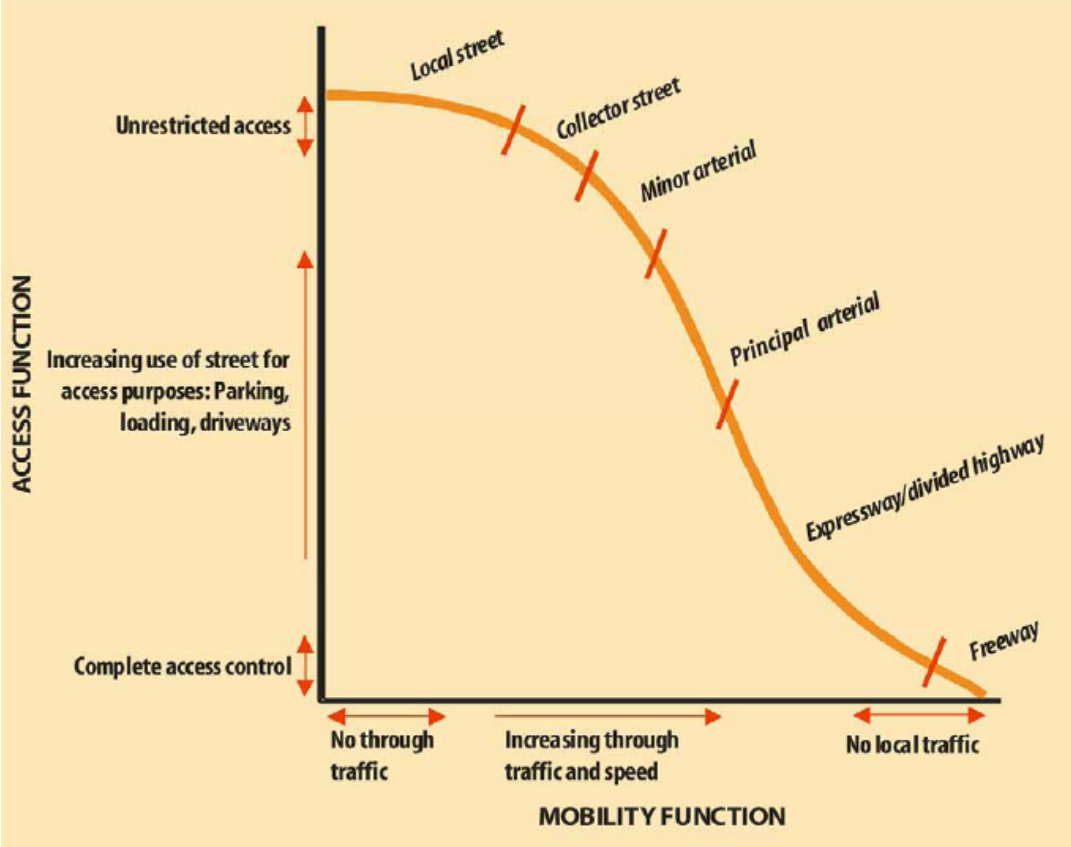
Section 2 described the competition between the two roadway purposes of moving traffic and providing access to adjacent properties. The essence of an access management and traffic management plan is to identify the balance between those purposes. **Figure 7-1** depicts the relationship between mobility and access for various classifications of roads. Combinations of mobility and access that fall to the left of the curve tend to be generally safer than roads that fall to the right of the curve.

Through the public involvement process for this study, the following sentiments were raised constantly:

- Maintain high mobility on US 24/40 Highway
- Provide for safe local access and traffic circulation
- Limit signals and place them at the right locations
- Provide adequate turn lanes and through lanes to maintain safety

These goals, provided by the public, define the guiding principles for the development of the US 24/40 Corridor Access and Traffic Management Plan. The goals will be achieved through the application of best practice strategies in access management, specifically to the US 24/40 Corridor.

Figure 7- 1: Mobility Access Relationship



Access Management Best Practices

The Transportation Research Board's Access Management Manual identifies 10 Principles for Access Management to limit and consolidate access points along major roadways, while promoting a supporting street system and unified access and circulation systems for development (**Table 7-1**). The result is a roadway that functions safely and efficiently for its useful life, and a more attractive corridor. The goals of access management are accomplished by applying these 10 principles.

Table 7-1: Access Management Principles

10 Principles for Access Management

1 Provide a Specialized Roadway System

It is important to design and manage roadways according to the primary function that they are expected to serve.

2 Limit Direct Access to Major Roadways

Roadways that serve higher volumes of regional through traffic need more access control to preserve their traffic function.

3 Promote Intersection Hierarchy

An efficient transportation network provides appropriate transitions from one classification of roadway to another.

4 Locate Signals to Favor Through Movements

Long, uniform spacing of intersections and signals on major roadways enhances the ability to coordinate signals and ensure continuous movement of traffic at the desired speed.

5 Preserve the Functional Area of Intersections and Interchanges

The functional area is where motorists are responding to the intersection (i.e., decelerating, maneuvering into the appropriate lane to stop or complete a turn).

6 Limit the Number of Conflict Points

Drivers make more mistakes and are more likely to have collisions when they are presented with the complex driving situations created by numerous conflicts. Traffic conflicts occur when the paths of vehicles intersect and may involve merging, diverging, stopping, weaving, or crossing movements.

7 Separate Conflict Areas

Drivers need sufficient time to address one potential set of conflicts before facing another.

8 Remove Turning Vehicles from Through Traffic Lanes

Turning lanes allow drivers to decelerate gradually out of the through lane and wait in a protected area for an opportunity to complete a turn, thereby reducing the severity and duration of a conflict between turning vehicles and through traffic.

9 Use Non traversable Medians to Manage Turn Movements

Non traversable medians minimize left turns or reduce driver workload and can be especially effective in improving highway safety.

10 Provide a Supporting Street and Circulation System

A supporting network of local and collector streets to accommodate development, and unify property access and circulation systems. Interconnected streets provide alternate routes for bicyclists, pedestrians, and drivers.

Table 7-2 identifies strategies that can be used to apply these best practices to specific locations.

Table 7-2: Strategies to Apply Access Management Principles

Limit Conflicts	
1. Purchase access rights	10. Replace a full median opening with a directional opening
2. Regulate the location, spacing, & design of driveways	11. Install a separator island to prevent left-turns within the functional intersection area
3. Restrict the number of driveways per lot	12. Install a median divider on the cross-road
4. Restrict the number of lots	13. Install a divisional island to prevent entry into left-turn bay
5. Encourage adjacent properties to share access	14. Install a physical barrier to eliminate uncontrolled access along property frontage
6. Coordinate driveway locations on both sides of the roadway	15. Locate access opposite signalized 3-way intersection
7. Install a nontraversable median	16. Install channelizing island to discourage left-turn maneuver
8. Replace a continuous two-way left turn with a nontraversable median	17. Install narrow median with indirect left-turns
9. Close a median opening	
Separate Conflicts	
18. Minimum corner clearance	20. Designate the access for each property
19. Maximize corner clearance by locating access as far from the intersection as possible	21. Consolidate access drives
Remove Turning Vehicles from the Through Traffic Lanes	
22. Provide separate left-turn entrances and exits at major traffic generators	26. Increase the length of existing turn bay
23. Install a continuous two-way left-turn lane	27. Install a right-turn deceleration bay
24. Install a left-turn deceleration bay at existing median opening	28. Install a continuous right-turn lane
25. Install a nontraversable median with left-turn bays	29. Install a right-turn lane serving multiple access connections
Reduce the Number of Turning Movements	
30. Provide connection between adjacent parcels	33. Provide a supporting circulation system
31. Require adequate internal circulation	
Improve Roadway Operations	
35. Long, uniform signal spacing	39. Internal access to outparcels
36. Install access on the cross-road	40. Indirect u-turn
37. Provide adequate sight distances	41. Provide a frontage road
38. Shared access/joint access	
Improve Driveway Operations	
42. Smooth vertical geometrics	
43. Adequate driveway throat width and curb return radii	45. Additional egress lane
44. Provide adequate sight distance	46. Define the ingress and egress sides of the access drive

Plan Development Methodology

The process followed to develop the Access and Traffic Management Plan for the US 24/40 Highway Corridor was to:

- Establish the relationship between land use and traffic in the corridor;
- Identify the roadway network necessary to support the projected land use;
- Identify access and the roadway network from US 24/40 Highway necessary to support the projected land use, while maintaining an acceptable level of mobility and safety on the highway; and
- Identify specific short, intermediate, and long range access management and operation improvement strategies and projects.

To maintain the current high mobility function of US 24/40 Highway, a complete system of supporting roadways must be developed in the corridor to provide access to properties and to channel traffic onto the highway at predetermined locations. The prerequisite to any determination of the street network is the establishment of the likely future land use in the study area. This identification of projected land uses within the corridor was completed as part of this study. Once the land uses were identified, a travel demand model was used to relate future land use to traffic forecasts.

A travel demand model is based on establishing the relationship between existing land development and the traffic volume on the roadway system. A computer model is developed that recreates the actual land use/traffic relationship that can be validated through a land use inventory and traffic counts. That relationship is then used to relate future land development in specific locations to future traffic forecasts on specific roads. By comparing the forecast traffic volumes to the capacity of the road system to handle traffic, the need for supporting roadway system improvements can be identified.

Thus, a supporting roadway network can be proposed which will provide adequate access to properties and will collect traffic to interface with US 24/40 Highway at appropriate spacing. The key to determining the access spacing on the highway is finding the balance between maintaining mobility and providing a sufficient number of access points so that no one point becomes over congested, while maintaining safety.

Best practices in access management encourage appropriate access spacing and traffic signal spacing based on desired travel speed for highways such as US 24/40 Highway. The access management plan developed for US 24/40 Highway needs to address the reality of existing access points which are not consistent with best practice guidelines. Consequently, the plan needs to provide short range solutions, as well as a path to achieve the ultimate desired access management.

Many existing roadways – in particular, older commercial strip developments – tend to be dotted with undesirable access design features. A project that applies access management design principles to existing, already built-up street corridors is sometimes called a "retrofit" project.

Retrofit projects can be complex and challenging. Along roadways where the property lines, buildings, and driveways have already been established, the benefits from any access management modifications have to be weighed against the costs and any disruptions that would be caused by modifying, moving, or eliminating driveways and median openings. Bringing such roadways into compliance may not always be a sufficiently high priority to pass the threshold for effort and funding. However, access management policies and standards can be applied when land along existing roadways redevelops. This practice can keep the situation from further deteriorating.

The existing conditions assessment in Section 2 described the relationship between access density and crash potential. It follows then, that reducing the number of full access points for locations that exceed the recommended access densities based on speed should be the first priority. These sections of US 24/40 Highway have been examined for reasonable opportunities for reducing the number of cuts and/or the full accessibility of cuts (median placement), in the context of a sensitivity for existing property access rights. The development of a practical interim plan involves providing alternative access, median placements, auxiliary lanes, and other strategies. The only point in the crash/access analysis sample that does not fit the regression line well is the 2-lane segment of US 24/40 Highway in the western end of the Corridor. This segment reflects a high crash rate compared to the number of access points. Providing widening for a median/center turn lane is an appropriate strategy for this section.

Likewise, the interim traffic management plan addresses roadway capacity issues, assessment of near term demand for signal installation and/or relocation, need for auxiliary turn lanes and other traffic management strategies to improve safety and operations. Although the overall levels of service for the corridor are adequate, key locations for evaluation that have been identified through the public meetings have been examined as part of this study.

The recommendations for long term strategies are based on future land use. The land development absorption rates provided by the economic study were used as the basis to identify the anticipated magnitude and areas for growth within the corridor. Land use development rates were estimated for the year 2030 as input into the travel demand model. These land development estimates were supplied to the planning staff at Leavenworth County, the cities of Basehor and Tonganoxie, and MARC for concurrency. The resulting 2030 traffic forecasts provided the basis for the development of the long-term roadway network in the corridor necessary to practically support the anticipated land use.

Supporting Roadway Network

In order for US 24/40 Highway to continue providing a high level of east-west mobility, it must be supplemented with a system of other roadways to provide varying combinations of mobility and access. This system of streets must include arterial streets, collector streets to feed traffic from multiple local streets to arterial streets, and local streets to provide direct access to properties.

The supporting roadway network for US 24/40 Highway should consist of:

- parallel arterial streets serving east-west traffic along Parallel Parkway and along Evans Road
- arterial streets intersecting US 24/40 Highway at generally one (1) mile spacing.
- collector streets typically situated at half mile points between arterials and/or running parallel to US 24/40 ranging between 400 feet and one-half mile off US 24/40

Figure 7- 2 depicts the basic major street plan for the corridor. This plan should be supplemented with local streets to provide access to individual properties. The collector street network shown in the figure represents the minimum collector system. Additional collector streets may be proposed as needed to support the proposed developments, and alignments of collectors may be adjusted to better serve the adjacent developments.

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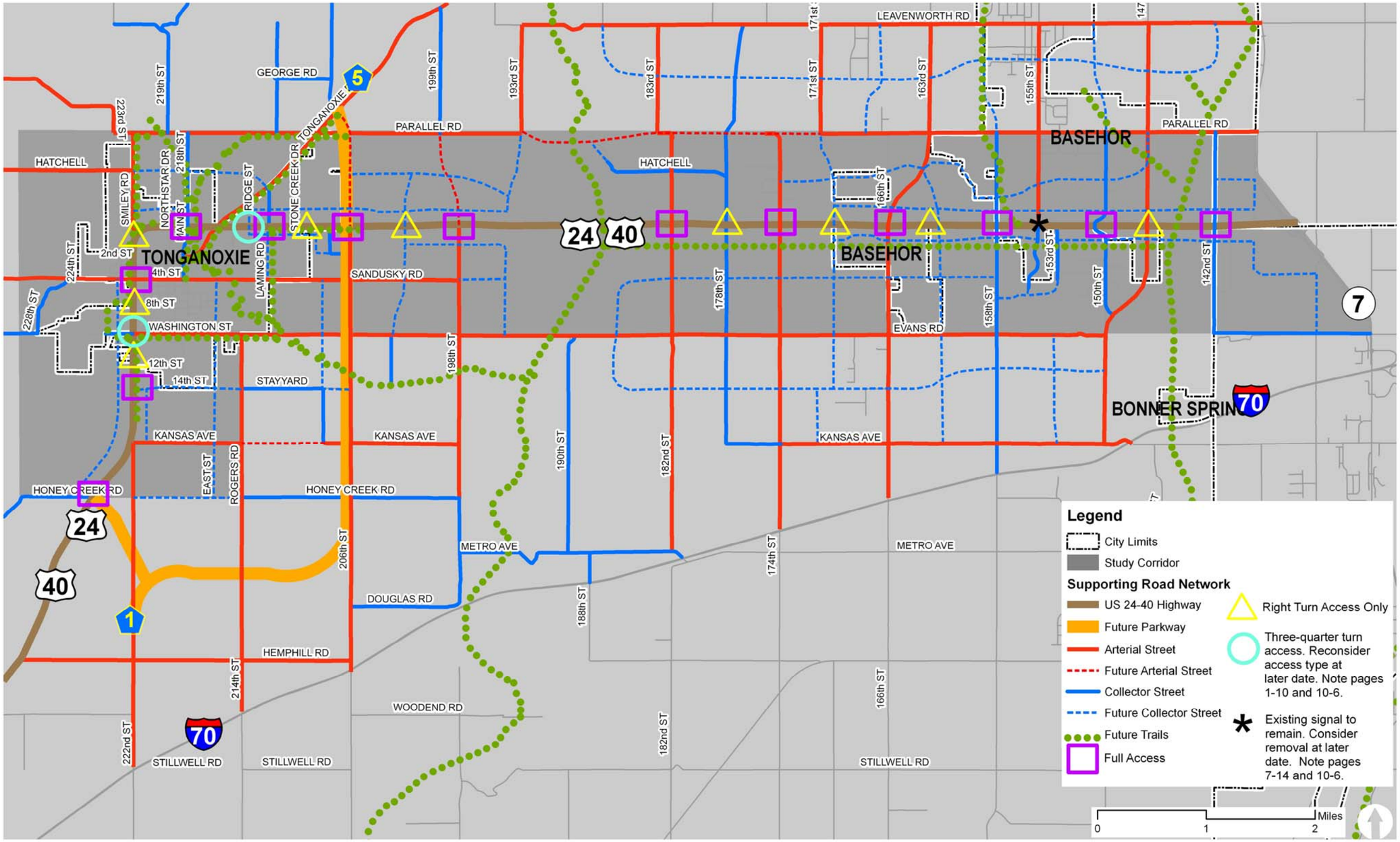
Figure 7-2: US 24/40 Corridor Supporting Transportation System Network Map



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Access Management Standards

The primary focus of the Corridor Study is to prepare a community based vision for the future of the corridor. This vision includes adopting standards for access management applicable to the desired character of new development or redevelopment in the corridor.

No single transportation planning publication is authoritative with respect to access management standards. Counties and cities adopt modified access management standards appropriate to their community and their desired future growth pattern. In most jurisdictions the demand for direct access to a roadway will increase as the adjoining area becomes more developed. Therefore, the standards adopted for the US 24/40 Corridor should be appropriate to support future urban development at an acceptable level of service.

It should be emphasized that the US 24/40 Corridor Access Management Standards are intended for new development or redevelopment projects and not for existing developed properties. For example, if a large lot residential acreage fronting US 24-40 Highway with an existing driveway to the highway remains with no change in land use, such driveway access could remain for the foreseeable future. However, if the property owner proposes to change the land use to put a commercial building on the site, the access management policy would apply.

- **A change in land use for property along US 24-40 Highway triggers the application of the Access Management Standards.**
- **When a change occurs from a rural use to a more intensive land use, existing access to the highway or an existing access to a connecting street may no longer be permitted.**

Table 7-3 outlines the US 24/40 Corridor Access Management Standards for future development and redevelopment, including standards for street intersection spacing, traffic signal spacing, number of full access points and right-turn only access points, turn lanes, and traffic studies.

The locations of permitted full and partial access as depicted in **Figure 7-2** have been correlated to future land use density zones called transects. Transects are described in greater detail in Section 8. **Figure 8-2** depicts the transects for the corridor.

Table 7.3: US 24 / 40 Corridor Access Management Standards

Standard	Description
All Areas: A traffic impact analysis shall be performed by a qualified traffic engineer for each requested access to US 24-40 Highway.*	The purpose of the traffic impact analysis is to identify potential safety and mobility impacts resulting from the new access.
All Areas: Allow new access onto US 24/40 Highway only for public streets.	Public streets can provide access for multiple property owners, whereas private access benefits only one property owner.
All Areas: Allow only those streets designated as collector streets or minor collector streets with connections to all adjacent properties to access US 24/40 Highway.	This standard insures that streets with access to the highway will provide access to multiple developments.
All Areas: Proposed plats of all properties within the 2-mile wide corridor shall provide street connections to all adjacent properties, and provide collector streets as designated by the ***US 24/40 Corridor Supporting Transportation System Network Map***.	This ensures collector and minor collector streets are able to provide access to properties that would otherwise be deprived of access onto US 24/40 Highway.
All Areas: The first access onto any street intersecting US 24/40 Highway shall be setback a distance no less than 400 feet from the edge of the highway pavement. A greater setback distance may be required by a traffic impact analysis.	This distance is sufficient in most cases for traffic entering the intersecting street from an adjacent development to be outside the functional area of the intersection. The functional area is the area near an intersection that includes the space needed for decelerating, accelerating, and queuing.
All Areas: Provide right-turn and left-turn auxiliary lanes off the highway, and right-turn and left-turn auxiliary lanes onto the highway for all new intersections with US 24-40 Highway. Auxiliary lanes shall not be less than 150 feet in length, plus tapers. A greater turn bay length may be required by a traffic impact analysis.	The auxiliary lanes will provide a refuge for turning vehicles out of the path of through traffic on the highway, and will allow right turn traffic to enter the highway unimpeded by queued left turn and through vehicles waiting to cross or turn onto the highway.
Transect T1 Area: No new access is permitted onto US 24/40 Highway.	T1 transect areas are primarily floodplain lands in which development is not permitted.
Transect T2 and T3 Areas: Where new access is permitted onto US 24/40 Highway, the public street intersection density shall not be greater than 2 per mile (½-mile spacing). Full access allowed at not greater than 1 per mile, with right in/right out only access provided at ½-mile spacing.	Half-mile access spacing is sufficient to provide access to most tracts fronting the highway in transect areas T2 and T3. It should be emphasized that this is minimum access spacing standard.
Transect T2 and T3 Areas: Limit spacing of traffic signals on US 24/40 Highway to be no closer than one mile.	Optimal spacing for future traffic signals is 1-mile intervals to minimize travel delay on the highway.
Transect T4 Area: Where new access is permitted onto US 24/40 Highway, the public street intersection density shall not be greater than 2 per mile (½-mile spacing). Full access and traffic signal spacing allowed at not greater than 1 per mile with right in/right out only access provided at ½ mile spacing.	Optimal spacing for future traffic signals is 1-mile intervals to minimize travel delay on the highway.
Transect T5 Area: Where new access is permitted onto US 24/40 Highway, the public street intersection density shall not be greater than 4 per mile (¼-mile spacing). Full access and traffic signal spacing allowed at not greater than 1 per mile with right in/right out only provided at ¼ -mile spacing.	Optimal spacing for future traffic signals is 1-mile intervals to minimize travel delay on the highway.

*A traffic impact analysis shall include:

- Intersection sight distance.
- Estimated future traffic volumes using the connection upon full tributary land development, based on trips generated by future land development.
- Intersection capacity and queuing analysis for existing conditions and forecast traffic volumes.
- Lengths and numbers of auxiliary lanes needed to accommodate the estimated future traffic, but not less than the minimums specified in these standards.
- Queuing distances from the intersection for all traffic movements based on the estimated traffic volumes. These queue lengths will be used to establish the distance back from the intersection where the first access onto the street will be permitted, but not less than 400 feet.
- Evaluation of a signal warrant based on the forecast traffic volume for the highway intersection.

Interim Access & Traffic Management Plan

Given the current lack of funding to build the permanent improvements, interim improvements should be implemented as needed to address safety issues that arise and to accommodate the growing traffic demands. Typical interim improvements include:

- **the relocation of existing traffic signals, and the addition of new traffic signals (only where legal warrants for signal installation are met),**
- **targeted widening of US 24/40 Highway to install a center turn lane or a median,**
- **removal of median breaks, and**
- **the addition of turn lanes at intersections.**

The interim (short range) Access and Traffic Management Plan is intended to provide mitigation for existing access and traffic management deficiencies. It is not the intent to deprive existing properties access, but is intended to improve the safety for the motoring public. Interim improvements are enhancements that can be implemented in less than a year's time, and can continue to be implemented until the ultimate plan is realized. The time line for implementation is dependent on local priorities and availability of funding. The appropriate jurisdictions should pursue these opportunities as funding allows, recognizing that implementation of the projects will result in enhancement of safety and mobility in the corridor.

The ***Highway Capacity Manual*** states that the travel speed on a multilane highway decreases by 2.5 mph for every 10 access points in one direction. Thus, the greater the number of driveways and street cuts onto US 24/40 Highway, the slower the resulting travel speed will be. Because a number of properties with access directly onto the highway possess multiple drives and access to adjacent roadways, the number of driveways accessing the highway could be reduced significantly without damaging the property owners' abilities to access their property. It should be noted that acquisition of access rights for superfluous driveways can be a time consuming and costly endeavor, and can sometimes leave property owners dissatisfied. Implementation of an interim access management plan will require individual discussions and negotiations with property owners to identify and address their concerns.

The Short-Range Traffic and Access Management Opportunities are summarized in **Table 7-4** and presented graphically in **Figures 7-3 to 7-7**.

Table 7.4: Interim Improvement Opportunities

Project	Description	Location	Jurisdiction
Consolidate Private Driveways	Owners may voluntarily cooperate with KDOT and local governments to consolidate multiple drives on their own property, share drives with adjacent property owners, or relocate drives to other roads to reduce the number of driveways onto US 24/40 Highway.	Multiple Locations	KDOT / Local
Relocate Traffic Signal	Remove existing signal that does not meet legal warrants at Tonganoxie High School entrance and relocate to the intersection at US 24/40 Highway / Main Street.	Tonganoxie High School Entrance and Main Street	KDOT / Tonganoxie
Intersection Study	Signal at 155th Street to remain after signals are installed at 150th Street and 158th Street. Since the signal at 155th Street results in less than the desired one-mile spacing between full access intersections on the corridor it will be monitored in the future for safety issues.	150th to 158th	KDOT / Basehor
	Construct parallel collector street on north side of US 24/40 between 158th Street and 150th Street. Accident history at 158th Street should be addressed.		
Alter On-site Traffic Circulation	Alter the on-site school traffic circulation to direct exiting traffic to Main Street where vehicles would make use of the Main Street traffic controlled intersection to access the highway.	Tonganoxie High School	KDOT / Local
New Traffic Signals	Install traffic signals at intersections along US 24/40 Highway locations warranted based on existing traffic counts and consistent with **Figure 7-2**.	Multiple Locations	All Parties
Auxiliary Left Turn Lanes	Install auxiliary left turn lanes at intersections along US 24/40 Highway	174th Street	KDOT / Leavenworth Co.
		142nd Street	KDOT / Basehor / Leavenworth Co.
Widening for Center Turn Lane	Widen existing highway to install a center turn lane to remove turning vehicles from through lanes for existing full access driveways and street intersections. Acquire adjacent right-of-way through site plan approval process.	US 24/40 Hwy from Smiley Road to E 14th Street	KDOT / Tonganoxie
Auxiliary Right Turn Lanes	Install auxiliary right turn lanes at intersections along US 24/40 Highway.	198th Street 182nd Street 174th Street 166th Street 150th Street 142nd Street	KDOT / Leavenworth Co. / Basehor

Project	Description	Location	Jurisdiction
Supporting Local and Collector Streets	Construct supporting local and collector streets to provide property access.	As noted in Figures 7-3, 7-4, 7-6, and 7-7	Tonganoxie/ Basehor
Median Closures	Median closures may be implemented by KDOT based on accident experience or in the implementation of the Corridor Plan.	Corridor-wide	KDOT
Acquire Right-of-Way on Intersecting Arterial Streets	Acquire 120' of right-of-way for designated intersecting arterial streets through site plan approval process.	Honey Creek Road 14th Street 21st Street Main Street Laming Road 206th Street 198th Street 182nd Street 174th Street 166th Street 158th Street 150th Street 142nd Street	Leavenworth Co. / Tonganoxie / Basehor

The western portion of the corridor through the original town area of Tonganoxie has the highest density of access to US 24/40 Highway in the corridor. The highway segment south of Smiley Road to E 12th Street should be widened in the short term to provide a center turn lane as depicted in Figures 7-3 and 7-4**.** The construction of a center turn lane may provide some traffic operation and safety benefits. A center turn lane would provide refuge for left turning traffic out of the path of through traffic. Potential consolidation of access has also been identified within this section.

Once traffic volumes increase sufficiently to justify two through lanes in each direction, the center turn lane should be replaced with a raised median from Stone Creek Drive to E 14th Street to provide the access spacing as indicated by Figure 7-2.

The construction of the median throughout the corridor could provide greater traffic operation and safety benefits than would a center turn lane in that it would reduce the number of conflict points for each full access driveway or intersection from 36 to 2 for a right turn only driveway or intersection. This would significantly reduce the opportunity for accidents and traffic conflicts.

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Figure 7-3: Short-Range Traffic & Access Management Opportunities

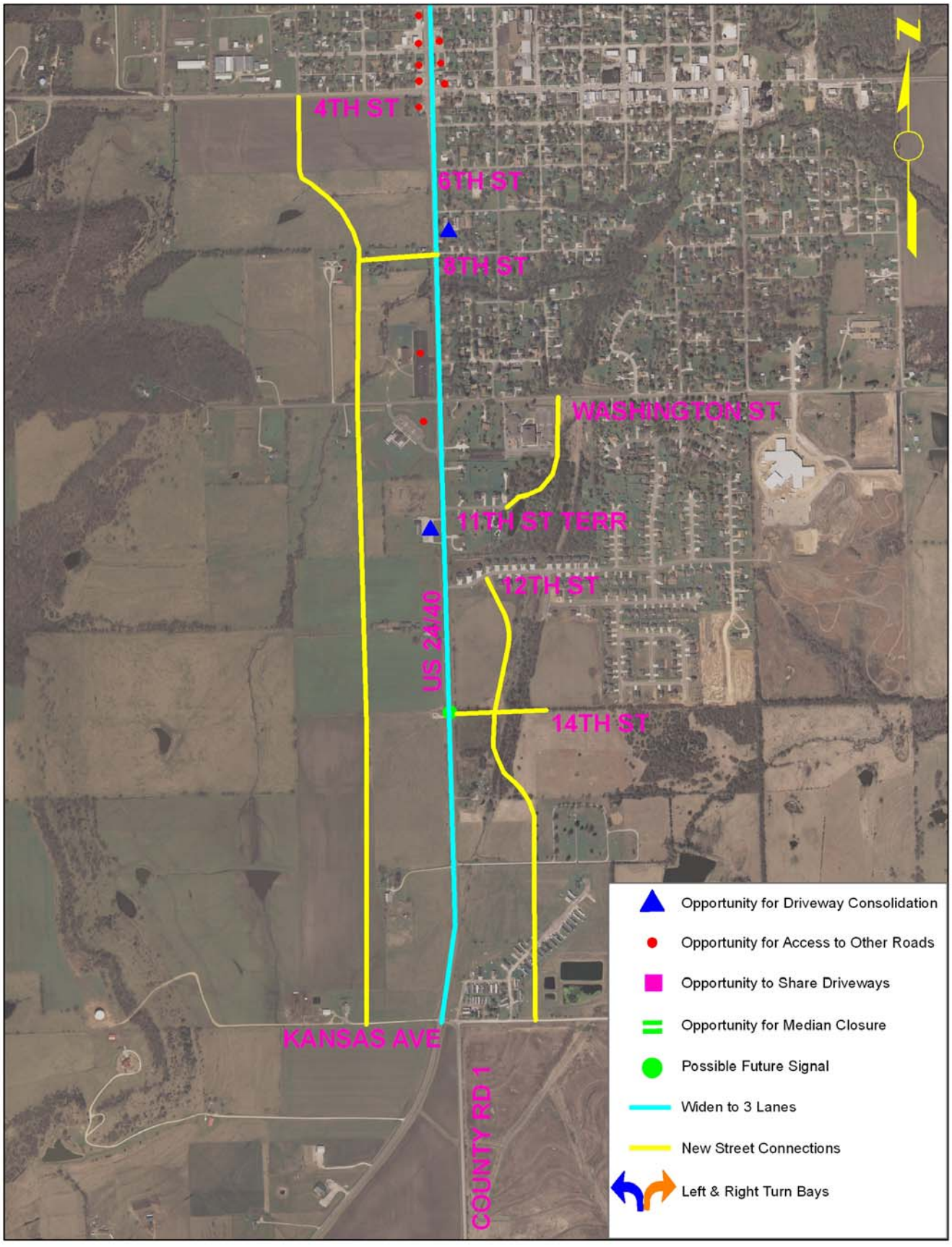

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Figure 7-4: Short-Range Traffic & Access Management Opportunities

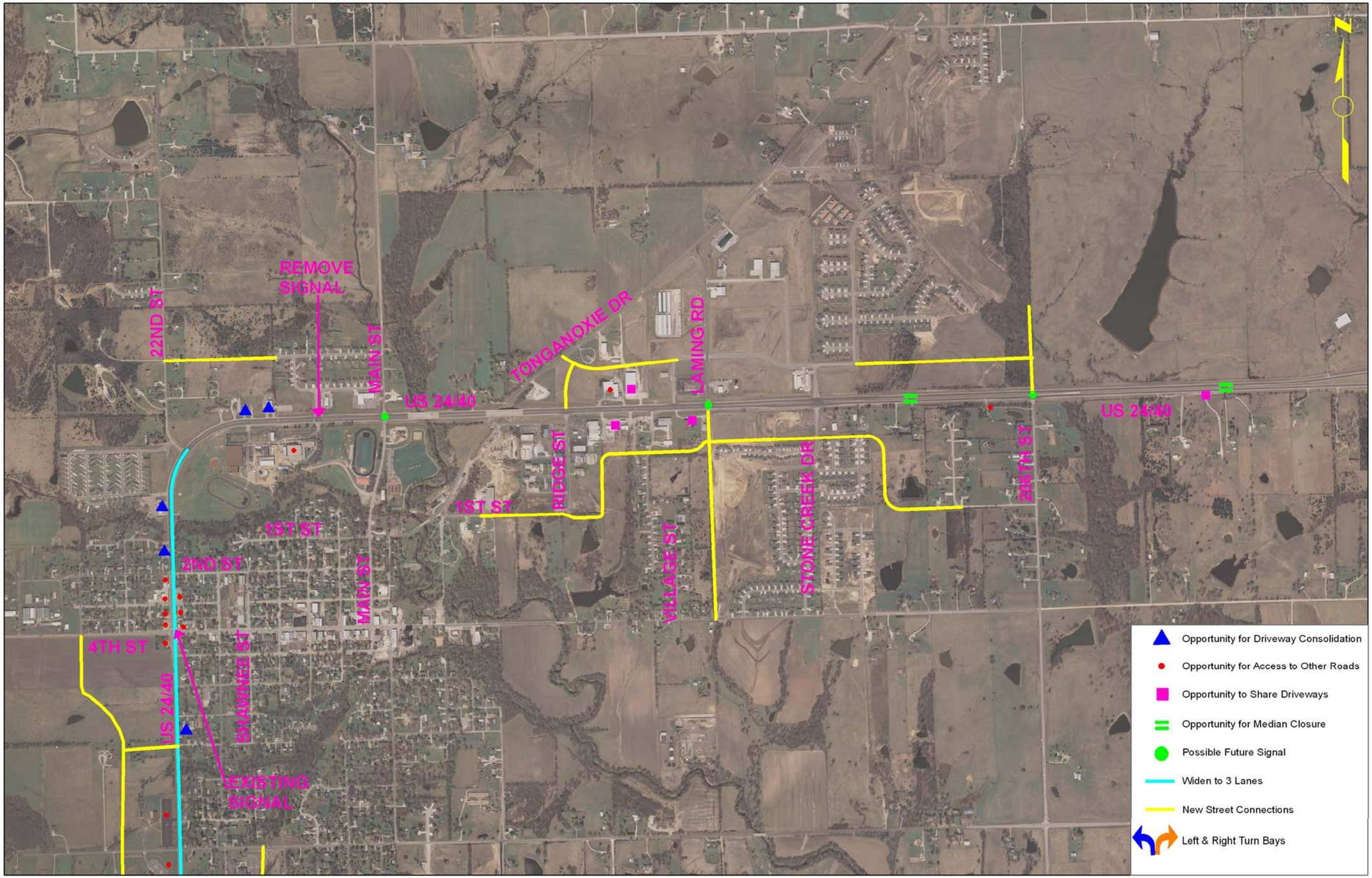

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Figure 7-5: Short-Range Traffic & Access Management Opportunities

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Figure 7-6: Short-Range Traffic & Access Management Opportunities

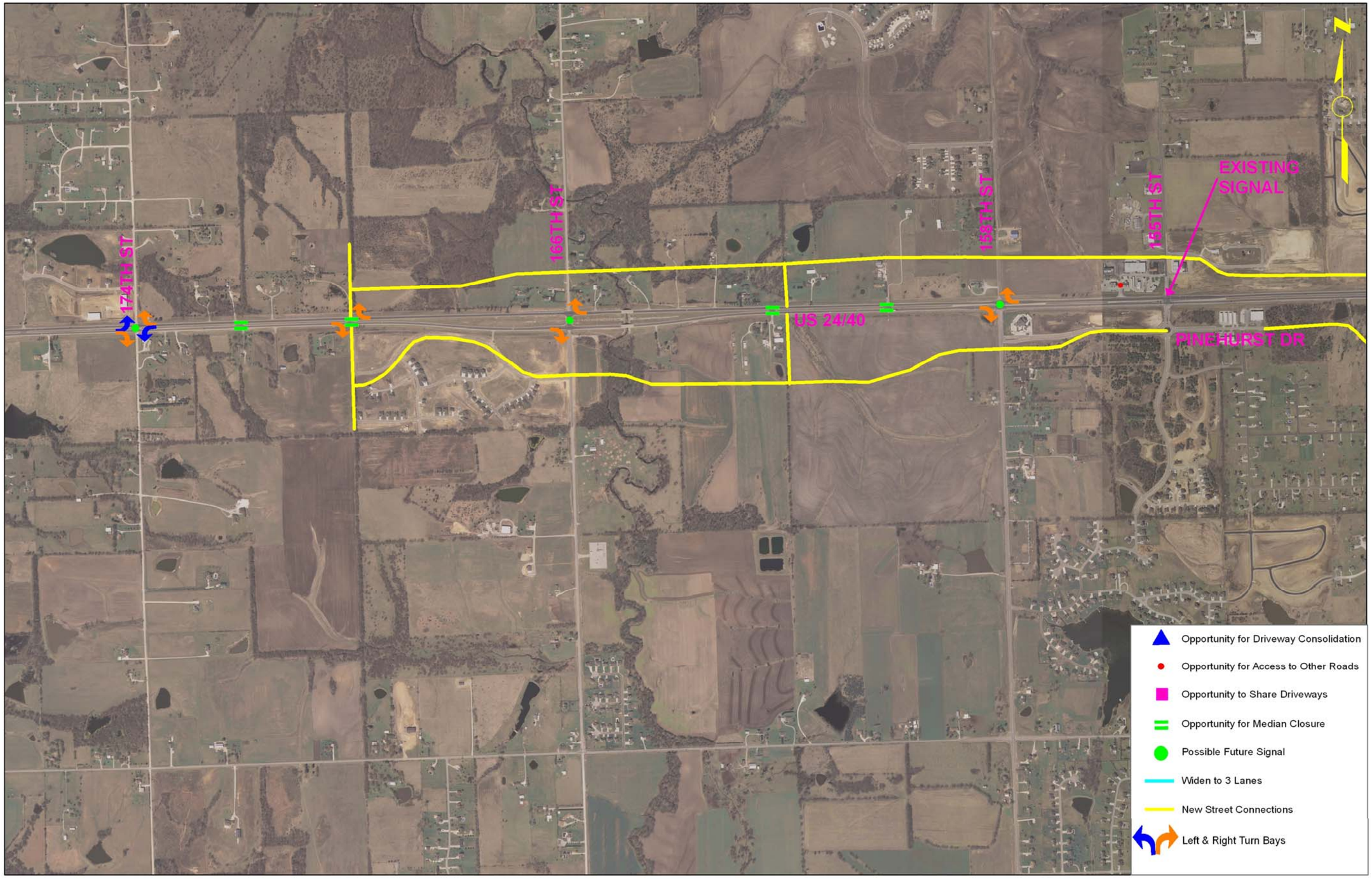

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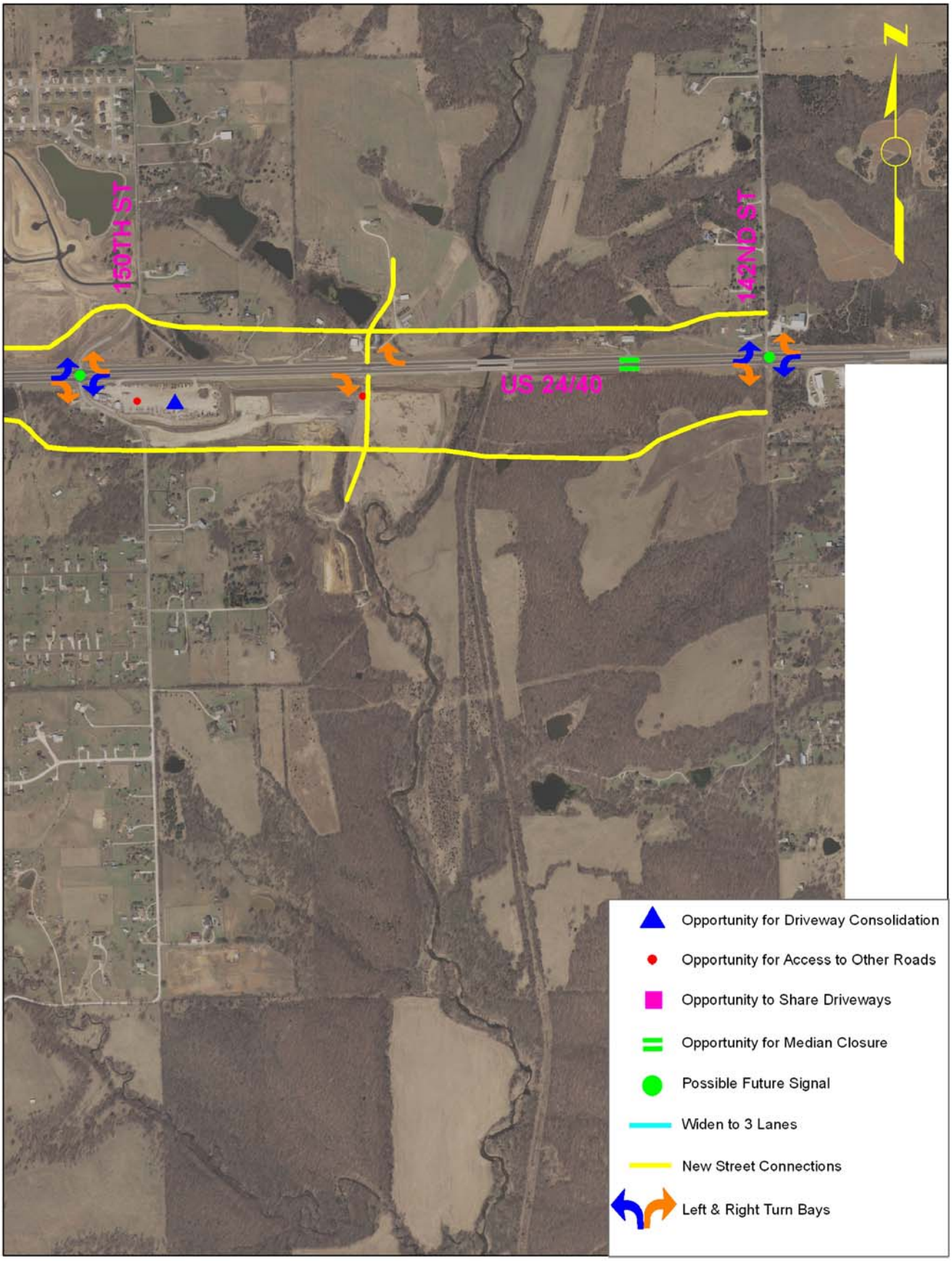
Figure 7-7: Short-Range Traffic & Access Management Opportunities



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Travel Demand Model

The US 24/40 Corridor is located at the fringe of the Mid-America Regional Council (MARC) regional travel demand model. The level of aggregation is quite coarse at the fringe, i.e., the traffic analysis zones (TAZ) cover a much larger geographic area. Larger zones result in most local streets not being modeled. To determine the impacts of future traffic growth in the US 24/40 Corridor, a refined travel demand model was developed for this study. The model area encompassed the entire southern portion of Leavenworth County (and a small portion of western Wyandotte County) and is bounded by Dempsey Road (north), K-7 Highway (east), Leavenworth County boundary (west), and I-70 (south). The model study area shown in **Figure 1-1** was divided into 89 traffic analysis zones as depicted in **Figure 7-8.**

The computerized travel demand model for this study was developed using the planning software VISUM to predict daily traffic volumes. VISUM is a state-of-the-art planning tool that offers a comprehensive, flexible software system for transportation planning, travel demand modeling and network data management. The VISUM model follows the standard four-step process as outlined in **Figure 7-9**. The steps are trip generation, trip distribution, mode choice, and traffic assignment. The trip generation step determines how many trips are generated in each TAZ. The trip distribution step determines where trips are going. The mode choice step identifies which modes are used while the trip assignment step determines which routes are taken.

Input to the model includes population and land use data for current and future planning years, as well as roadway infrastructure for current and planned roadway improvements. Output of the model includes current and future predicted traffic volumes on roadway segments and intersections, as well as various performance measures of the existing and future transportation system. Observed trip length distributions by different trip purposes and traffic counts are used to calibrate the model to ensure the model prediction reasonably replicates current travel patterns. The calibrated base year model is then used to forecast future travel demand in the study corridor.

Figure 7-8: Model Area Traffic Analysis Zones

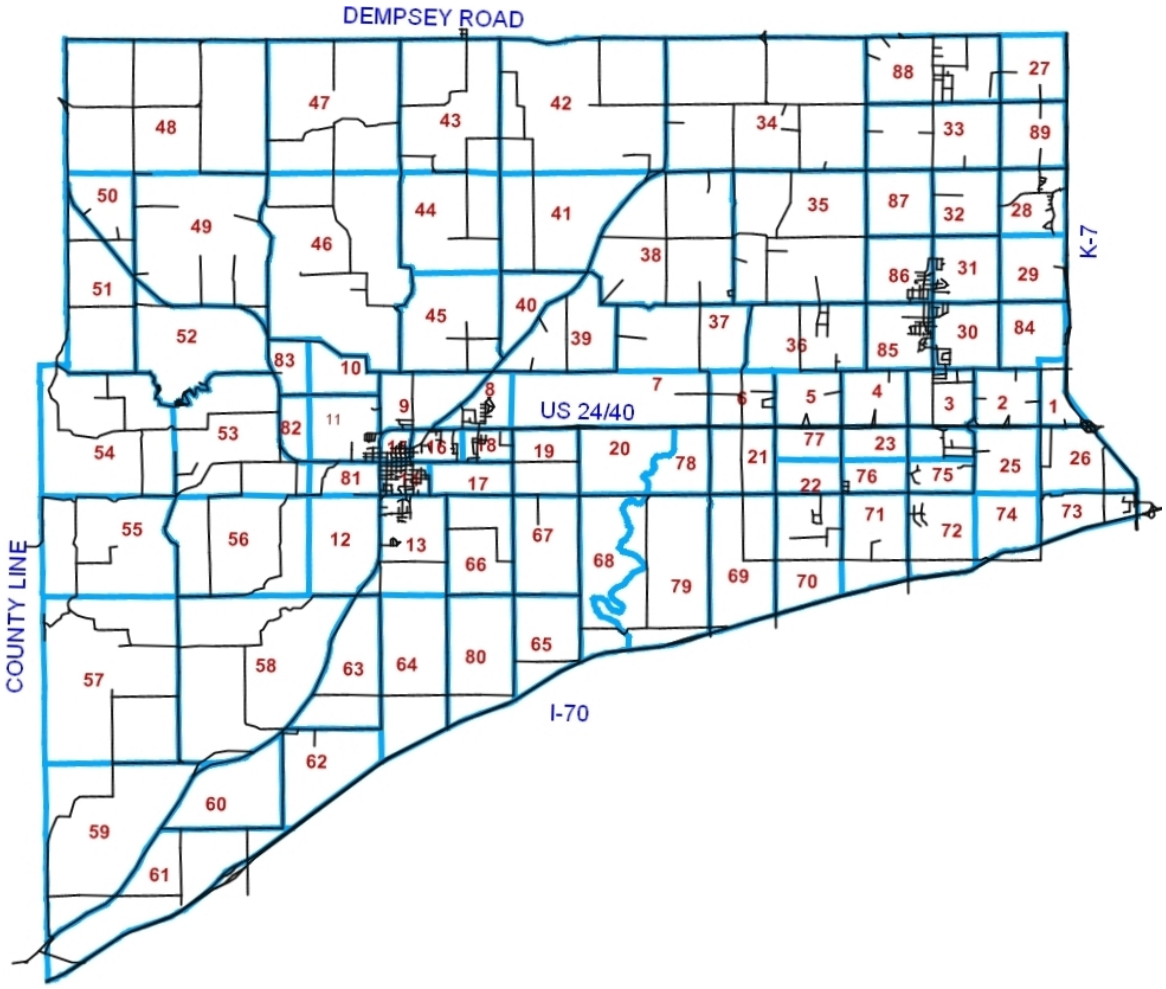
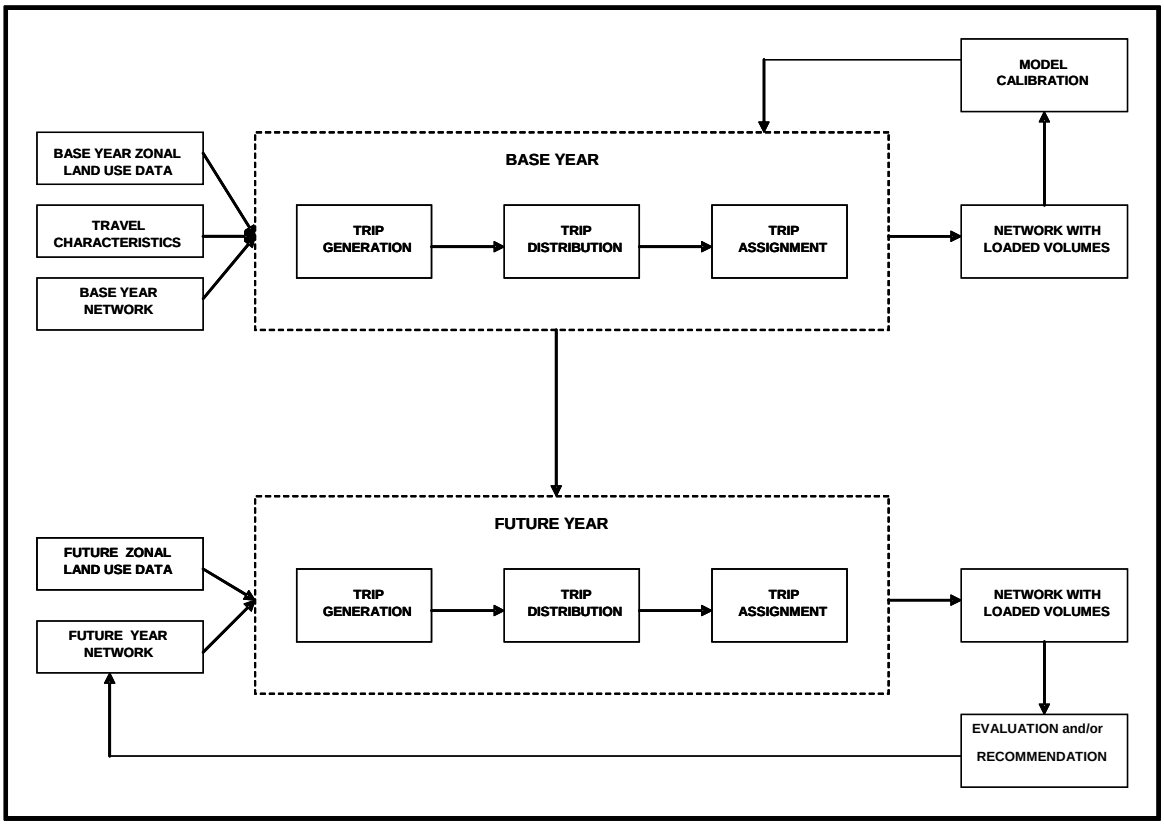


Figure 7-9: Development and Application of Travel Forecasting Models



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Traffic Forecasts

Traffic forecasts were developed for the Corridor for the year 2030. These forecasts were products of a travel demand model prepared for the Corridor Study. A travel demand model is based upon an inventory of the location and intensity of various existing land uses, and a compilation of existing traffic counts on specific roads. The model establishes a relationship between the specific existing land uses and traffic volumes on specific roads. That relationship is then applied to projected specific land development for a future planning horizon, such as 2030, to arrive at corresponding traffic forecasts on specific roads. The forecast land development was based on historic growth patterns, the capacity of the corridor to absorb additional employment as derived from the economic study performed as part of this project, and the comprehensive plans for Basehor, Tonganoxie, and Leavenworth County.

Figure 7-10 depicts existing daily traffic volumes along the corridor.

Figure 7-11 depicts the Year 2030 forecast daily traffic volumes. It can be determined from **Figures 7-10 and 7-11** that traffic on US 24/40 Highway is projected to increase only incrementally by 2030. The results of this increase will mean some greater difficulty for side road traffic to enter US 24/40 Highway under the current stop sign intersection controls. It can be expected that the number of intersections warranted for traffic signal installation may increase, unless rural development is carefully managed, and the new developments remain clustered within the existing city limits of Basehor and Tonganoxie, utilizing those intersections already warranted for signals as their access to US 24/40 Highway.

The construction of an interchange at County Road 1 and I-70, while not significantly affecting the overall volume of traffic generated by the corridor, could affect the traffic flow patterns within the corridor. The opening of the interchange will induce heavier daily traffic flows to the west end of the corridor, as exhibited in **Figure 7-12**. This could accelerate the need for widening of US 24/40 Highway from Tonganoxie south to County Road 1 to four lanes plus a median.

Right-of-way sufficient for four lanes plus a median should be secured from properties abutting the highway as they submit plats and development plans. The necessary width of right-of-way to construct an urban four-lane plus median section should not be less than 120 feet wide.

As further development and redevelopment occurs, the center turn lane of US 24/40 Highway between 4th Street and Stone Creek Drive in Tonganoxie should be converted to a raised median in accord with the access depicted in **Figure 7-2**.

The right-of-way for designated arterial roadways intersecting US 24/40 Highway with full access should be planned at 120 feet wide.

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Figure 7-10: Existing Traffic Volumes

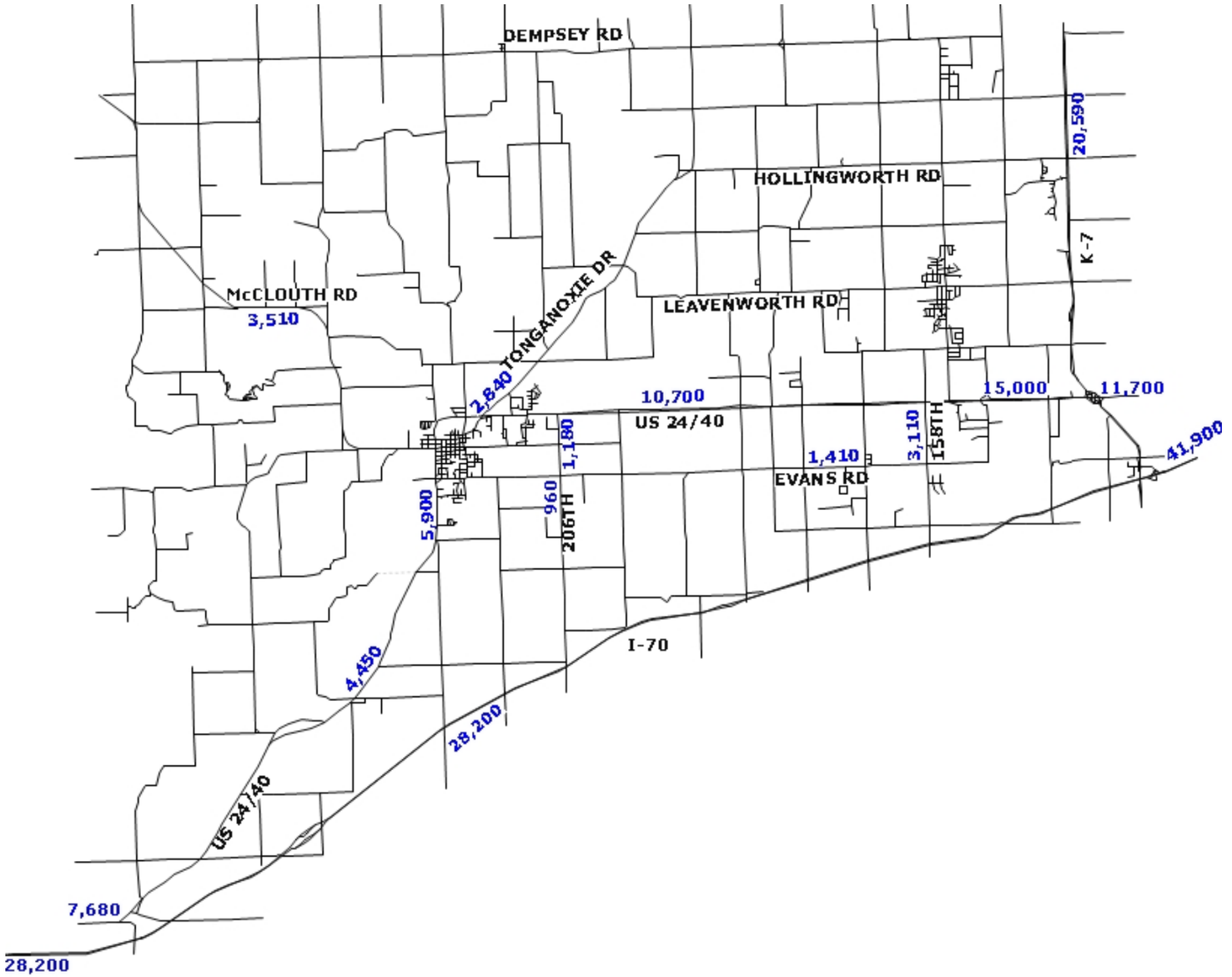

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Figure 7-11: 2030 Forecast Traffic Volumes

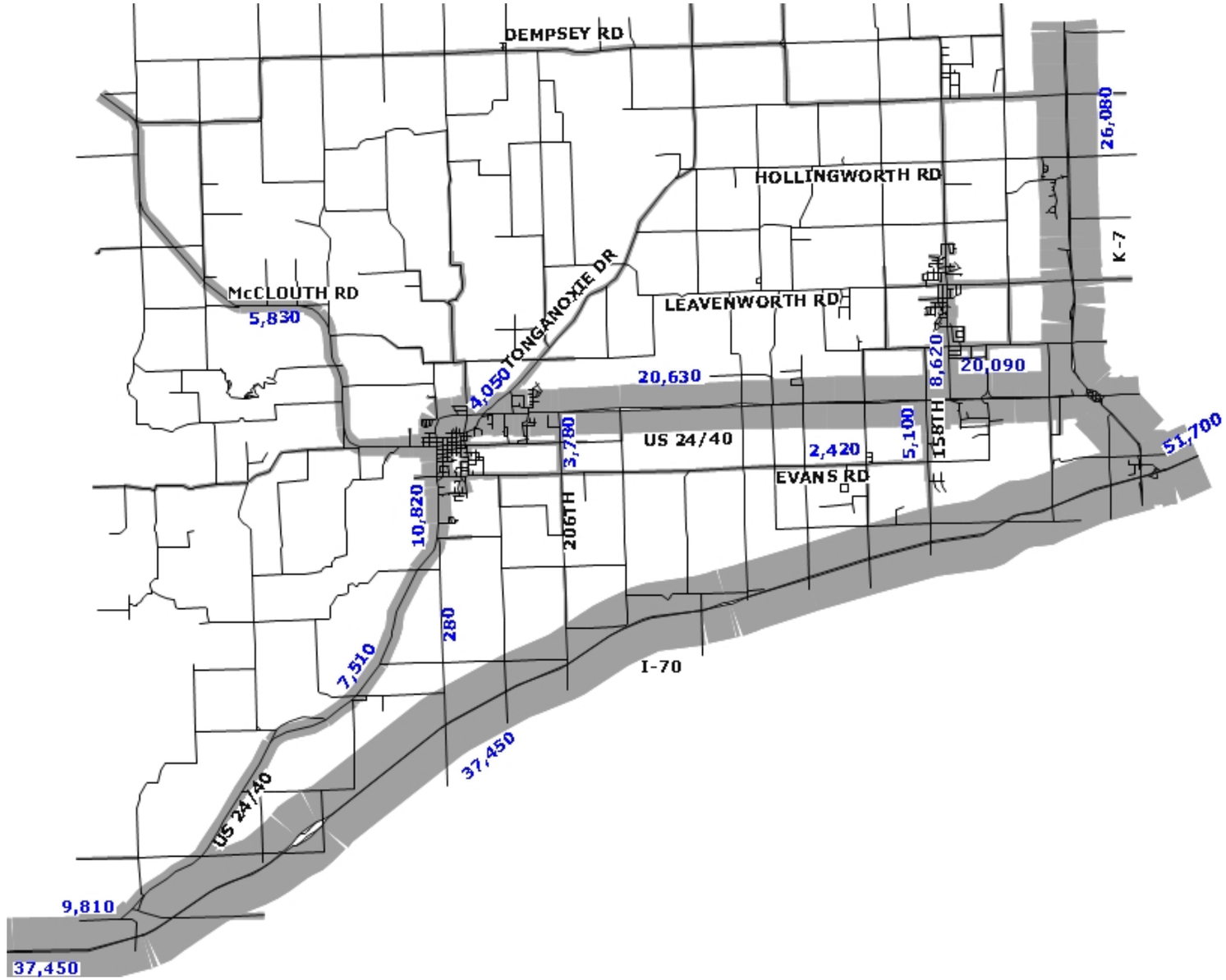

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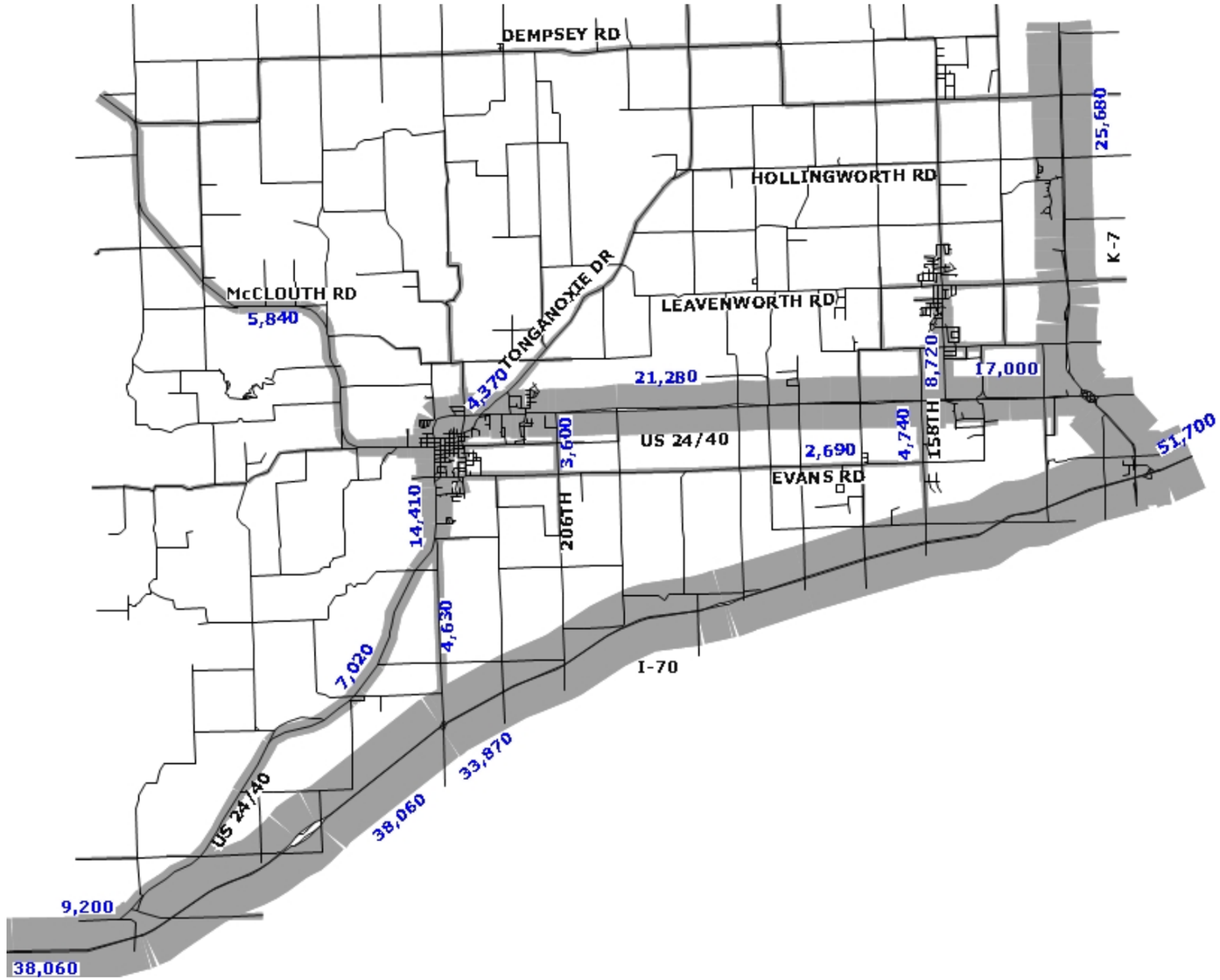
Figure 7-12: 2030 Forecast Traffic Volumes (with Co. Rd. 1 interchange with I-70)



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