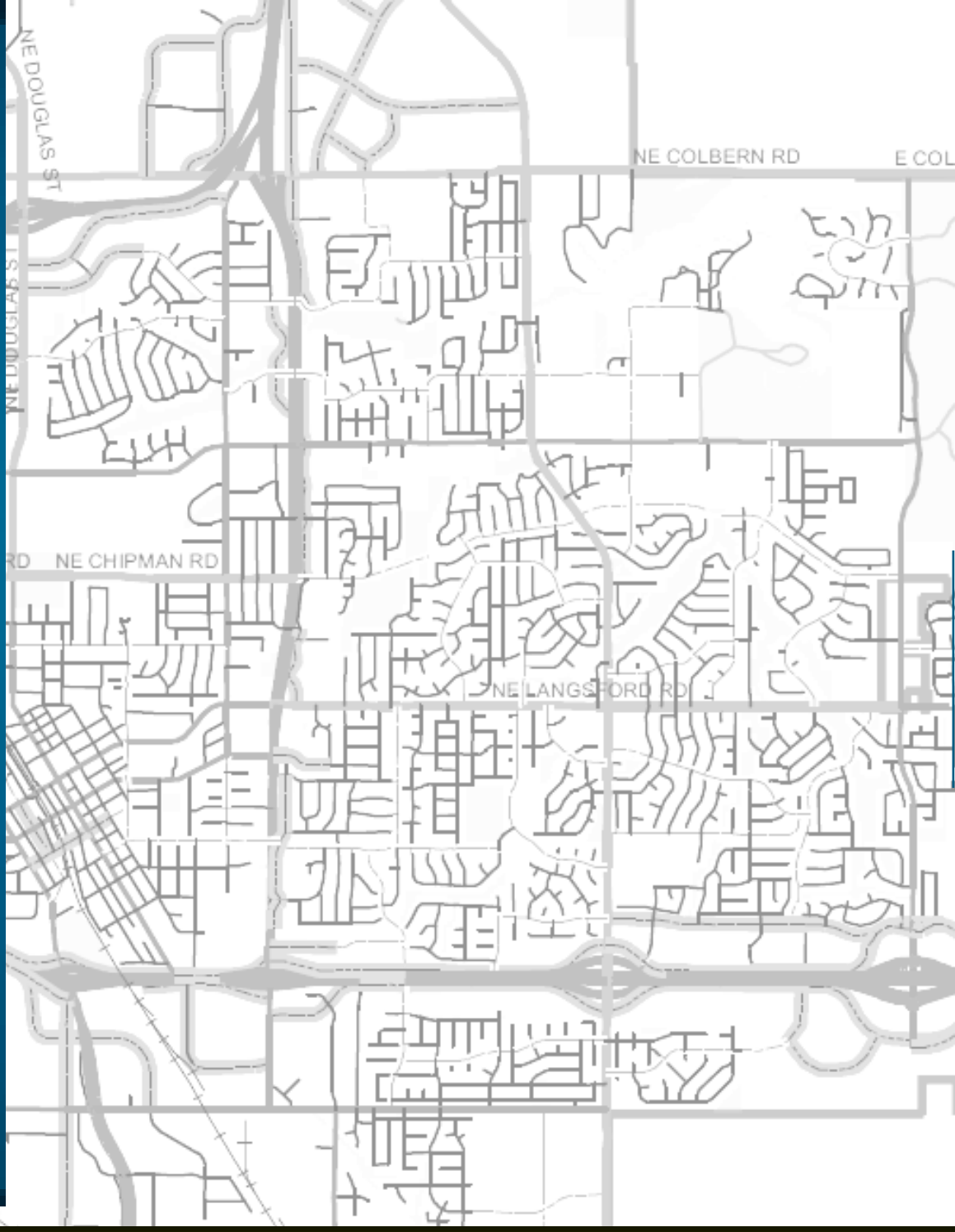

Thoroughfare Master Plan 2015-2040

LEE'S SUMMIT
MISSOURI

LEE'S SUMMIT
MISSOURI

December 27, 2016

Planning Commission
City Hall
220 SE Green Street
Lee's Summit, Missouri 64063

RE: Lee's Summit Thoroughfare Master Plan

Dear Chairman Norbury,

Enclosed is the final report of the Thoroughfare Master Plan of the City of Lee's Summit, MO. The report provides a comprehensive transportation study of travel in the City of Lee's Summit and is an update of the Thoroughfare Master Plan adopted in 2006. This Thoroughfare Master Plan identifies short and long-term roadway improvement priorities. This transportation plan is incorporated in the City's Comprehensive Plan upon approved resolution of the Planning Commission and compliments other modal transportation plans such as the Greenway Master Plan and Bicycle Transportation Plan.

The Thoroughfare Master Plan addresses a number of specific tasks including:

- An update of roadways, roadway classifications and characteristics;
- An update of existing and future socio-economic data and land use for traffic forecasts;
- An update of the existing Lee's Summit travel demand model;
- Travel analysis for 2015, 2025 and 2040 scenarios;
- Identify transportation projects that address operations, safety, livability and economic priorities; and
- Reestablish the Thoroughfare Master Plan.

The analysis, project recommendations and report were prepared in consideration of past Lee's Summit Thoroughfare Master Plans, the current Lee's Summit Comprehensive Plan, the Mid-America Regional Council Transportation Outlook 2040 Plan and in coordination with City Planning Staff, City Council and other City Departments.

Sincerely,

Michael Park, P.E., PTOE
City Traffic Engineer

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Chapter 1 - Introduction

1.1 Purpose of the Project

This project will provide a comprehensive transportation plan that reflects existing and future vehicular travel in the City of Lee's Summit. Consequently, the Thoroughfare Master Plan is adopted into the City's Comprehensive Plan as a guide for development activity and roadway improvements. This plan is a revision/update that replaces the Thoroughfare Master Plan adopted in 2006. The 2006 Thoroughfare Master Plan, travel demand model and report is hereby credited for source material (and text) used in the analysis and preparation of this document.

The Thoroughfare Master Plan identifies short- and long-range transportation conditions and related roadway improvement needs. Other transportation modes, such as bicycle, pedestrian, and transit may have associated plans adopted in the City's Comprehensive Plan too. These other modal plans, like land use zoning, influence the transportation system and should be referenced when considering roadway improvements.

Previous Thoroughfare Master Plans (developed in 1995 and 2006) were in response to a rapid population growth for Lee's Summit that had occurred between 1970 and 2006. During that time the City's population increased from approximately 16,000 to over 88,000. The City's population has continued to increase since 2006, although at a slower rate, with a population in 2014 of 93,888. During this period (2006 to 2014) the Nation weathered a major recession. The City experienced a slower growth in residential, commercial and industrial developments during this time. Furthermore, the inventory of developable land within the City is diminishing; what lands remain have more challenge to realize its highest and best use. The same rapid population and economic growth of previous decades is not expected to rebound with long-term sustention. Rather, Lee's Summit will likely continue its transition from growth to maturity; a community focused on maintenance, re-development and high quality of life.

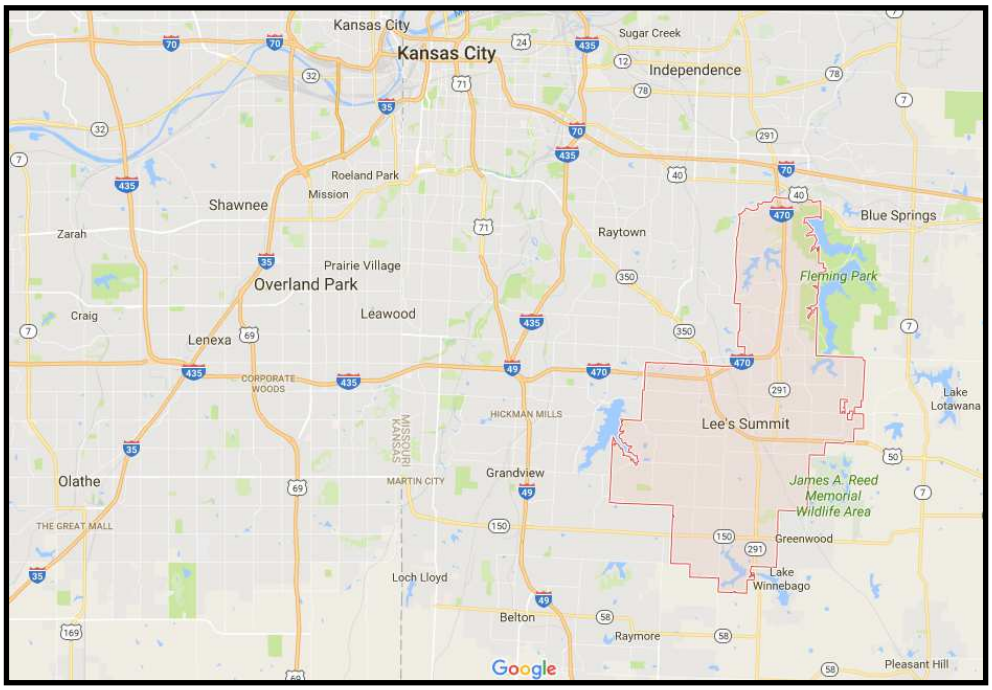
The Thoroughfare Master Plan update is necessary to take in to account the transportation system modifications since 2006, community development and redevelopment activity, annexations, revised land use plans, demographic changes, and to (re)assess short- and long-term transportation improvement priorities considering more current forecast. The Thoroughfare Master Plan update includes the following tasks:

- Update of the existing roadway network in the Lee's Summit travel model;
- Update of existing land use and future land use plans;
- Identification of projects to address transportation needs;
- Project impacts, costs and prioritization; and
- Amendment to the Thoroughfare Master Plan/City Comprehensive Plan.

1.2 Study Area

The study area includes the city limits of Lee's Summit plus a peripheral area surrounding and adjacent to the city that could influence traffic flows. An analysis of transportation improvements will be completed for the area within the city limits of Lee's Summit.

Location Map



1.3 Stakeholder and Public Involvement

The 2006 Thoroughfare Master Plan underwent a substantial public engagement process and set the foundational transportation network built upon in the development of this plan. The long-term transportation system presented in this plan, especially the arterial roadway network, remains consistent with the plan adopted in 2006. A more comprehensive network of future collectors has been drafted for this revision of the Thoroughfare Master Plan to compliment the arterial network previously defined. The collector network was based on topography, property boundaries, proximity to arterials, and other development initiatives, plats and plans that often involved public hearings or otherwise have little to no influence of public review. The alignment and scope of road improvements is only conceptual; and still subject to applicable public review at the time of development and construction that materialize these plans and project recommendations.

A conceptual overview of the Thoroughfare Master Plan was presented to the Public Works Committee on Tuesday, January 20th, 2015 in a public forum. All of the projects listed in the Thoroughfare Master Plan were proposed to the City Council for discussion of funds related to the balance of Transportation Sales Tax in numerous meetings between July 2015 and the end of December 2015. While the review of road projects for potential allocation of funds was a focus, the Thoroughfare Master Plan and its process was presented to the City Council as well. Similarly, individual project recommendations forthcoming from this plan and project prioritization would be considered more fully and publicly vetted with actual funding opportunities.

Additional forums for public education and feedback regarding this plan were provided at meetings with the Planning Commission and City Council Economic and Development Committee. Discussions included community growth projections, safety, livability and quality of life, economic development priorities, and capacity/congestion mitigation projects. The final plan was presented to the Planning Commission for adoption at a public hearing held on January 10, 2017.

Chapter 2 - Land Use

This chapter documents the land use planning completed in support of the Thoroughfare Master Plan. It describes the residential and non-residential land use growth anticipated over the planning study period (2015-2040).

2.1 Land Use Planning

Land use planning helps define the community's physical characteristics and shapes its future. Current and anticipated land uses for Lee's Summit are described in the 2005 (Amended) Comprehensive Plan. The recommended land use plan has been used as a guide to forecast development and change. The existing land use map for the City of Lee's Summit is shown on Exhibit 1. The future year land use map is shown on Exhibit 2. Existing and future land use plans have been developed by the City of Lee's Summit Planning Department.

2.2 Land Use Modeling

Land use data was provided by the City of Lee's Summit Planning Department. The Planning Department develops and maintains land use mapping for the City which is incorporated in the City's Comprehensive Plan. Land uses shown in the 2006 transportation model were updated to reflect land use in 2015. Land uses included in the model are:

- Single family residential units (two or less households);
- Multi-family residential units;
- Industrial square feet;
- Commercial square feet;
- Office square feet;
- Park square feet;
- Open Space square feet;
- Hospital square feet; and
- Schools square feet;

Land use forecasts were developed for the year 2040. The year 2040 is consistent with the regional planning horizon (Mid-America Regional Council Transportation Outlook 2040, developed in 2014/2015). This land use is included in the City's Comprehensive Plan; a plan that is routinely under evaluation and amendment by the Planning Department. Using the year 2040 land use data, City staff worked together to determine an intermediate level of growth for the 2025 analysis year. The 2025 analysis provides a 10-year growth forecast that can be used to assess short or mid-term transportation needs. A 10-year forecast is typical and consistent with previous Thoroughfare Master Plans. The 2040 analysis provides a 25-year growth forecast that can be used to assess long-term transportation needs.

Year 2025 forecasts include development proposals received as of October 2014 by the City of Lee's Summit. The forecasts also reflect a 10-year residential, commercial, office and industrial growth based upon historical trends, economic climate estimates, and applied community planning experience. Floor area ratios (FAR) were used to assist in determining the amount of building square feet associated with each 2025 land use.

Year 2040 forecasts are based upon the future land use plans identified above. Historical trends and reasonable geographic (and infrastructure) impediments were used to determine the predicted year 2040 levels of development. Floor area ratios (FAR) were used to assist in determining the amount of building square feet associated with each 2040 land use.

A major land holder in Lee's Summit is Property Reserve Incorporated (PRI), a real estate division of the Latter-Day Saints (LDS) Church. PRI owns 1,100 acres of vacant property on the east side of I-470 north of Colbern Road and south of Woods Chapel Road. The City had a market study completed and prepared a recommended land use plan for the north PRI property. PRI has not indicated when this land area will be developed. For the purposes of this study, this area will be referred to as PRI North. A portion of this property is considered developed for the 2040 scenario, but not before 2025. The 2040 scenario that includes PRI North will be studied separately.

PRI also owns a significant amount of property in the south part of Lee's Summit. PRI owns over 3,000 acres of vacant land south of Longview Road and north of M-150 Highway between Sampson Road and Hamblen Road. The City has prepared general land use guidance on the anticipated mix of land uses that should be allowed or required in the south/central area of the City. These assumptions are documented in the 2005 (Amended) Comprehensive Plan and can be used to estimate the building square feet anticipated as part of the PRI south properties. For the purposes of this study, this area will be referred to as PRI South. This property was not assumed to develop by the year 2040.

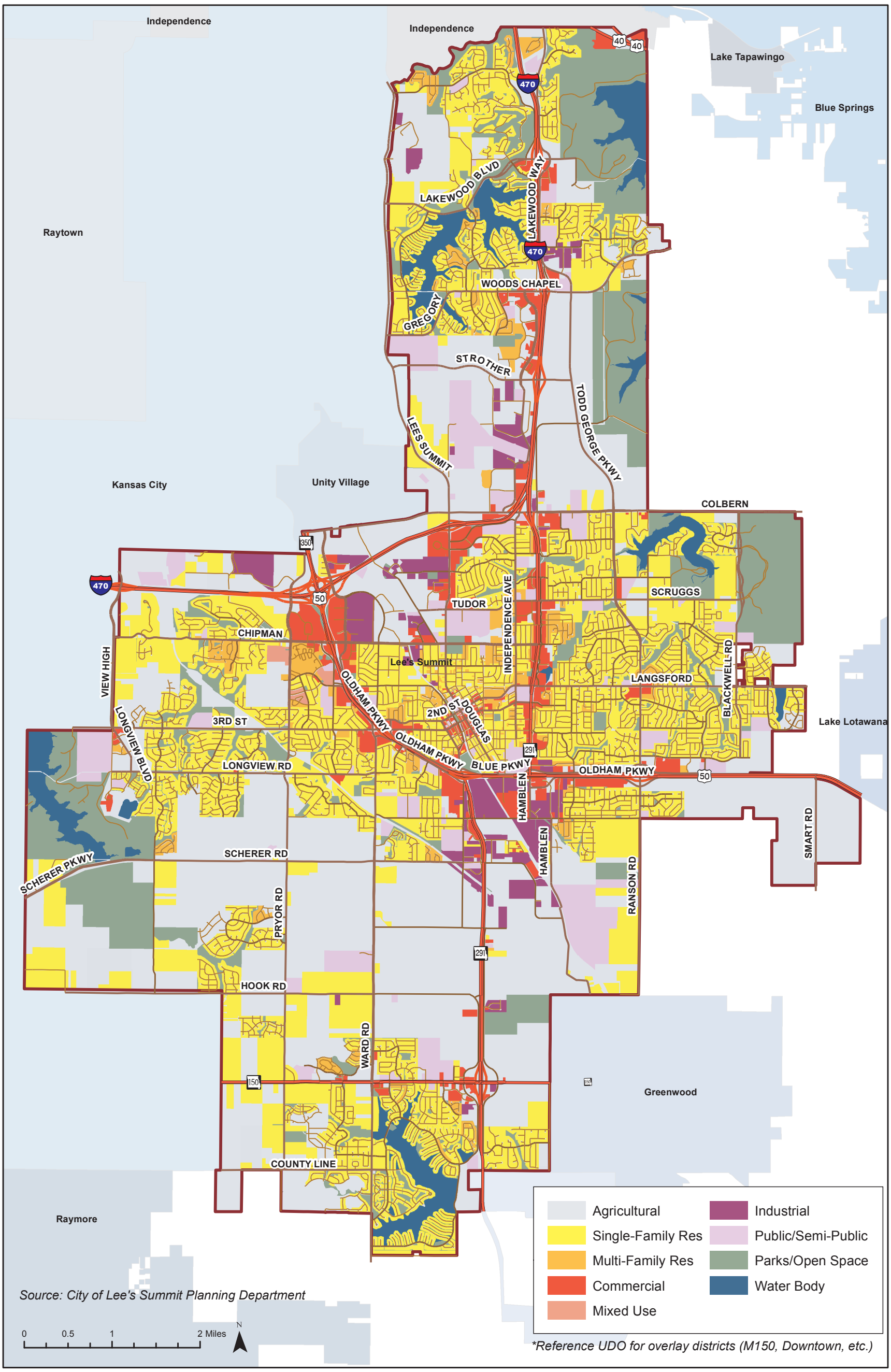
A review of land use and land use forecasts for the City of Lee's Summit is listed in Table 1. Land use forecasts used in the 2006 study are available in the Appendix for historical reference and comparison. Analysis for the 2040 year was conducted without PRI development and with PRI development. The scenario considering PRI development includes only the north PRI property bound primarily by Colbern Road, I-470 and Woods Chapel Road.

Table 1 –Land Use (City of Lee's Summit)

Land Use Scenario	Single Family Units	Multi Family Units	Commercial Square Feet	Office Square Feet	Industrial Square Feet
Year 2015	30,544	7,116	6,531,887	1,962,446	6,824,603
Year 2025	32,707	8,488	11,991,017	3,805,397	7,036,788
Year 2040 (No PRI Developed)	34,585	10,601	16,614,699	5,965,565	10,661,382
Year 2040 (PRI North Developed)	34,585	10,647	18,422,298	7,619,354	10,661,382

2.3 Summary of Community Growth

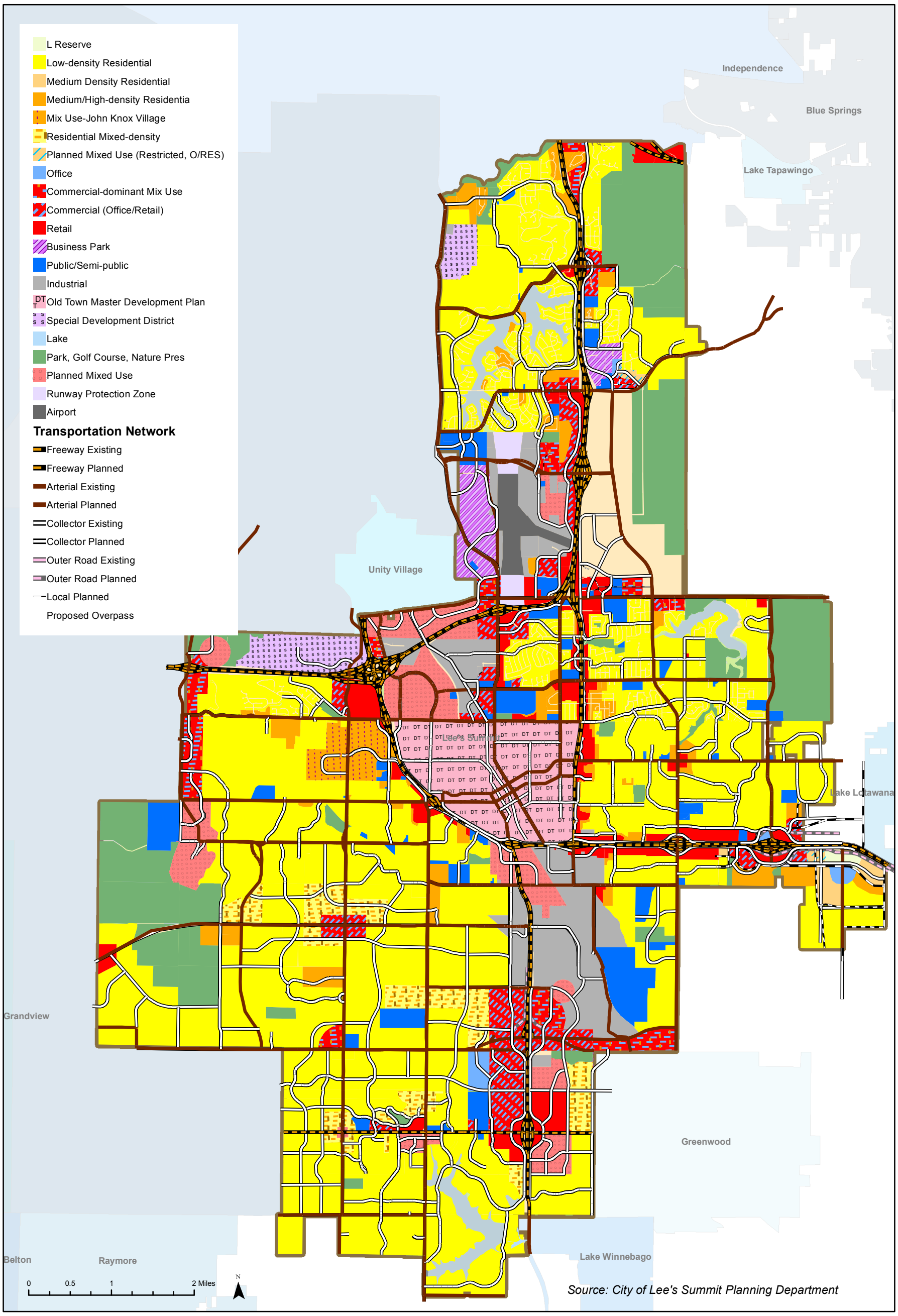
The City of Lee's Summit has experienced significant growth over the last few decades. It is in transition from a principally residential oriented growth to a community that also desires a more balanced commercial, industrial and office landscape. Community building and rebuilding is anticipated to continue over the next 20 to 25 years and beyond although at a slower pace than the previous 20 year period. The pace of growth is expected to slow due to sparse availability of undeveloped property, the environmental and infrastructure obstacles to development are more significant on remaining lands, and re-development (a likely priority) is generally more difficult to accomplish.



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

Exhibit 1 - Existing Land Use



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

Exhibit 2 - Future Land Use

Chapter 3 – Existing Transportation System

The purpose of this chapter is to describe the existing transportation system in the City of Lee's Summit. There are several components to the transportation system that cover vehicular travel, pedestrian movement, bicyclists and transit riders. All modes of transportation are further addressed in the City's adopted Livable Streets Policy (Resolution 10-17). This Thoroughfare Master Plan will focus on roadways (i.e. streets and highways) for vehicular travel. Other modes of transportation are addressed in the Greenway Master Plan, Bicycle Transportation Plan, Sidewalk Plan (and ADA Transition Plan), Airport Master Plan, and through Transit Study. These other modal plans have influenced the existing road network. Exhibit 3 illustrates the Greenway Master Plan, a transportation network that primarily consists of shared-use paths and trails principally intended for non-motorized recreational use. Exhibit 4 illustrates the Bicycle Transportation Plan, a transportation network of bicycle routes, mostly an on-street network of cycling accommodations that are predominately for utilitarian use. The Greenway Master Plan and Bicycle Transportation Plan have been adopted and incorporated in the City's Comprehensive Plan.

3.1 Existing Road Network

The transportation model was updated to accurately reflect the built roadway network. The existing road network and functional classification system is shown on Exhibit 5. Functional classifications were assigned on the foundation of previous Comprehensive Plans and Thoroughfare Master Plans from a system of commonly defined functional hierarchy in the traffic engineering and transportation planning industry.

Functional classification describes how a particular roadway is intended to function with respect to travel mobility, speed and level of access provided. Typically, higher functional classifications provide for higher levels of mobility, higher travel speeds, greater capacity and limited side street and driveway access. Lower functional classifications typically provide for lower levels of mobility, lower travel speeds, less capacity and provide for greater side street and driveway access. Functional classification in this plan is reported in a local context. The roadway network class attributes in Lee's Summit represents a municipal, or local, system of classification which although similarly termed is not necessarily the equivalent classification hierarchy used to describe a regional or national system of roadways. For example, a roadway classified as a municipal arterial may be considered a collector or local roadway on a regional or national scale. For the purposes of the Thoroughfare Master Plan, classifying roadways based on a municipal setting better represents the travel patterns and the roadway network of Lee's Summit.

Freeways represent the highest functional classification. Expressways have similar characteristics as freeways except that these roadways may not be fully access controlled or have a limited number of at-grade intersections. Both freeways and expressways tend to move relatively high volumes of traffic at high speeds with little or no conflict from side streets or driveways. Arterials are also designed to move traffic volumes at relatively high speeds with few traffic conflicts from side streets and driveways. The intersections of two arterials can result in the need to provide a large area to accommodate multiple through lanes and turning lanes or multi-lane roundabouts. Collector streets provide access from neighborhoods and business parks to the arterial street system. Even on collector streets, residential and non-residential collectors, it is desirable to limit direct driveway access to the extent possible. Residential and local streets are the lowest functional classification of streets where low speeds are encouraged and direct roadway access is provided from adjacent properties.

The Lee's Summit roadway network has been built primarily on the traditional rural section grid outside of the city's central core. The City is served by a freeway system that includes I-470/M-291 which extends from the north end of the City directly south, and then I-470 transitions to the west. I-470/M-291 provides a number of access points to the regional freeway system. A second freeway is US 50/350 which extends around the central part of the City and connects with I-470/M-291.

There are a number of expressways and other highways that serve the Lee's Summit area. US 40 is a four-lane highway that runs east-west through the most northern portion of the City. M-291, a major north/south highway through the center of Lee's Summit, provides a connection between I-470 and US 50 and is located to the east of the downtown area. M-291 is an expressway that extends south of US 50 as the primary north-south highway route in the southern portion of Lee's Summit, providing a regional connection from the Kansas City metropolitan area to the City of Harrisonville and to portions of the City of Raymore. M-150 is a state highway accommodating east-west travel in the south part of the city. M-150 provides access to I-49 west of the City and to the City of Greenwood east of Lee's Summit.

The freeway/highway/expressway network is supported by arterials and collectors. Arterial and collector streets provide a link between primary highways and local streets. The City of Lee's Summit classifies roadways as major arterials, minor arterials, commercial/industrial collectors, residential collectors and local streets. Classifications are based on the intended long-term function of the roadway rather than current design and use. More detailed information on roadway classifications can be referenced in the City's Access Management Code.

In addition to the functional classification of roadways, City streets can be characterized as an unimproved, interim or urban roadway. The urban standard is not specifically defined, however, for the purposes of this report an urban roadway would be improved or constructed beyond the interim standard to meet typical City street requirements for the urban/suburban context that includes curb and gutter, enclosed storm sewer, street lighting, sidewalks, etc. An urban roadway is generally complete, but does not necessarily refer to a full-build or permanent condition that meets future demands. Urban roadways often require capacity improvements as the community grows. An exception to the characterization of unimproved, interim or urban roadway applies to streets in the Old Downtown Area since this area was constructed when standards did not include elements of today's urban/suburban section.

In 2005, City staff developed a policy with City Council direction and approval that clarified what standards constitute adequate roadway infrastructure for development. This policy was titled the Unimproved Road Policy. Per this policy an unimproved roadway is an arterial or collector generally narrow in width (18-20 feet) with open drainage ditches adjacent to the roadway. The Unimproved Road Policy provides a relationship between development growth and the improvement of unimproved roadways for adequate infrastructure and public safety. No new unimproved roads may be constructed. Non-Residential development is not allowed on existing unimproved roadways. Residential development is allowed on existing unimproved roads until the traffic volume reaches approximately 50% of its capacity. However, no development is allowed on any unimproved roadway that operates as a one-lane facility with two-way traffic (i.e. less than 18 feet in width) or without mitigating all one-lane sections of road (e.g. one-lane bridges or culverts). Pavement and drainage conditions will also be considered with regard to development on unimproved roadways.

While developing the Unimproved Road Policy, City staff and City Council determined the conditions in which development may occur on unimproved roads and realized there may be an allowable period during the city's maturation when an unimproved roadway requires mitigation but does not require an urban standard, particularly in the more rural context of the community. This interim condition in part was generated to reduce

development costs while addressing safety concerns. The Unimproved Road Policy identifies the interim road standard as a minimum of two 12-foot lanes with six-foot grass shoulders. Existing roads may also share the interim condition description with 11-foot lanes and shoulders less than 6 feet in width. These existing interim roadways may include short portions of unimproved conditions or one-way segments that are still unimproved. All interim road improvement projects though shall be as described in the Unimproved Road Policy. In 2010, City staff updated the policy definition to include paved shoulders in lieu of grass shoulders especially for capital improvement projects. This was in consideration of the City Council adopted Livable Streets Policy. Paved shoulders may indicate interim road conditions, but may also be a sustainable element of urban road design in the presence of other urban road standards. The 2005 policy has not yet been formally revised to impact development standards. According to policy, development may occur on interim roads until 80% capacity has been reached. Multi-lane interim roads would not be permitted. Arterials may be constructed to an interim standard, but not new collector or local roads. The Unimproved Road Policy should be periodically reviewed and updated in consideration of changing road capacity standards, levels of service and community preferences.

While evaluating the existing road network, gaps along collectors and arterials were identified. These gaps differ from planned roads. Planned arterial and collector roadways can be referenced on the Thoroughfare Master Plan. For the purposes of this study, gaps are generally short section(s) of roadway (less than one-half mile in length) that have not been constructed, or 'missing', within the built environment that includes a continuation of roadway or corridor terminating at existing intersections on both ends. Many of these gaps already have right-of-way for the roadway. These gaps were identified to recognize potential travel impediments and system benefits; if a driver cannot continue directly on a route, an undesirable alternative is likely used, delay incurred, capacity and efficiency lost. A community is more accessible, more livable and vibrant, when it is well connected.

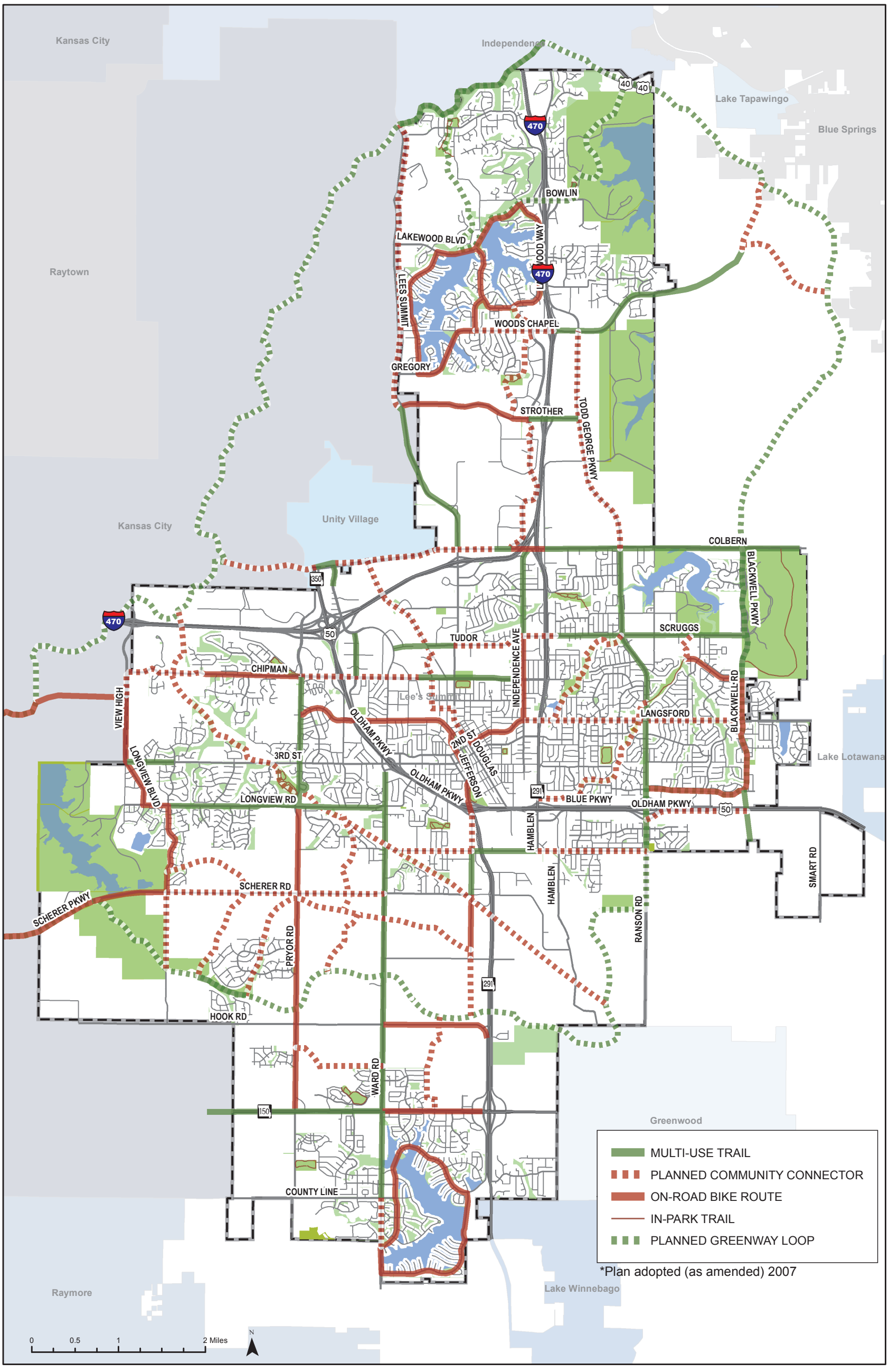
Exhibit 6 illustrates roadways currently defined as an unimproved or interim standard. Unimproved or interim standard roads within the "Old Lee's Summit" area (as defined in the Old Lee's Summit Development Master Plan; an area bound by M-291 to the East, Chipman Road to the North, US 50 Highway to the South and West) are separately noted. Unimproved or interim local roads were excluded from this scope of thoroughfare planning. For simplification, an arterial or collector roadway consistently less than 22 feet in paved width (rounded up to the nearest foot) was characterized as unimproved, but the severity of any public safety concern related to this condition varies based on pavement width available. The pavement width of unimproved roads is noted on Exhibit 6 and may be helpful in prioritization of projects. Those unimproved or interim roadways with shared jurisdiction at the City Limits were not included in the exhibit but these too could need improvement through partnership with adjacent governments. Exhibit 6 also identifies existing gaps in the roadway network. Existing unimproved roads, interim standard roads and gaps are listed and further discussed in Section 4.4.

3.2 Existing Road Characteristics

The existing road network was developed using existing characteristics, such as number of lanes and speed limit. Both of these characteristics are important to describe the existing condition. Exhibit 7 illustrates the number of lanes along roadways and Exhibit 8 depicts posted speed limits.

After updating the model to better reflect existing 2015 conditions, output volumes from the model could be validated. Existing, field measured, daily traffic count data, obtained from the City and MoDOT, was compared to volume outputs from the model. The model was developed to reflect existing traffic conditions as accurately as possible.

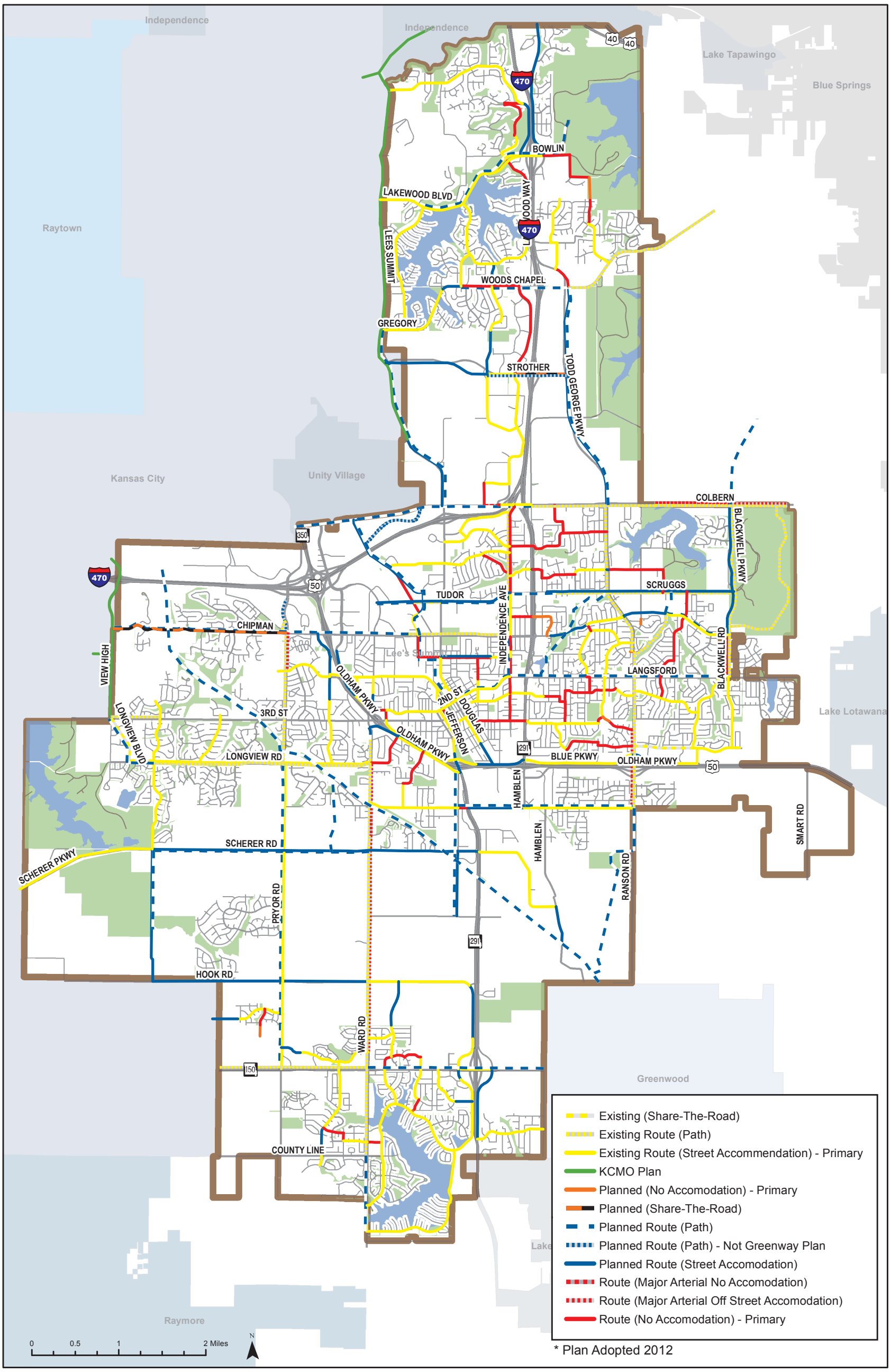
After the model was validated, existing roadway capacity was reviewed. Roadways were reviewed to determine if traffic volume levels were under, near, at or over the industry accepted roadway vehicle capacity for the conditions. Most over capacity locations were identified along the highway system, or along arterial roadways near interchanges with the highway system. This is consistent with personal experiences and commonly received citizen comments regarding roadway capacity. The existing arterial and collector network, based on observations and intersection level of service calculations, is adequately operating with only a few locations over capacity. Existing, field measured and rounded, daily traffic counts are enumerated on Exhibit 9. Existing operations and recommended improvements for 2015 are covered later in the report.



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

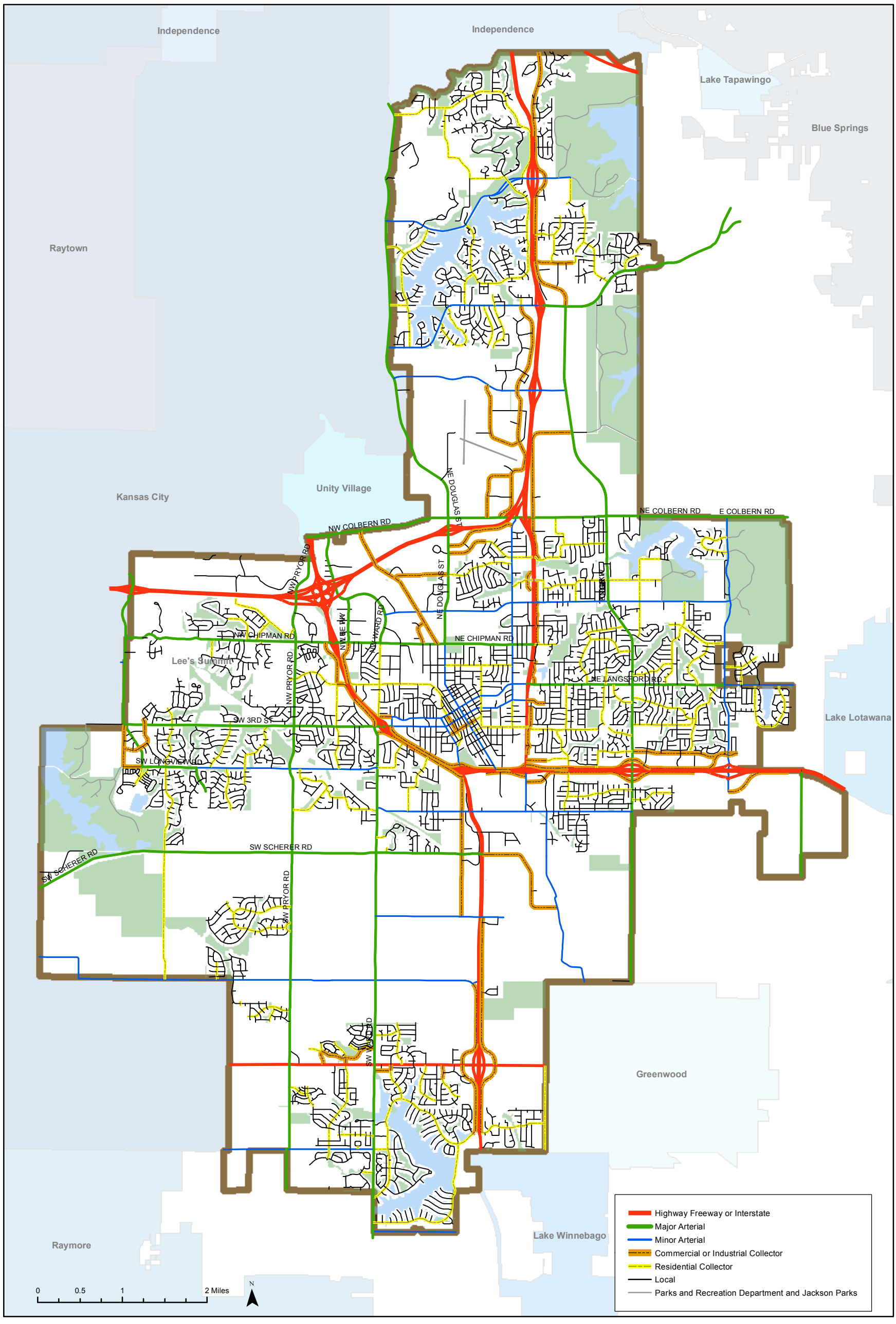
Exhibit 3 - Greenway Master Plan



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

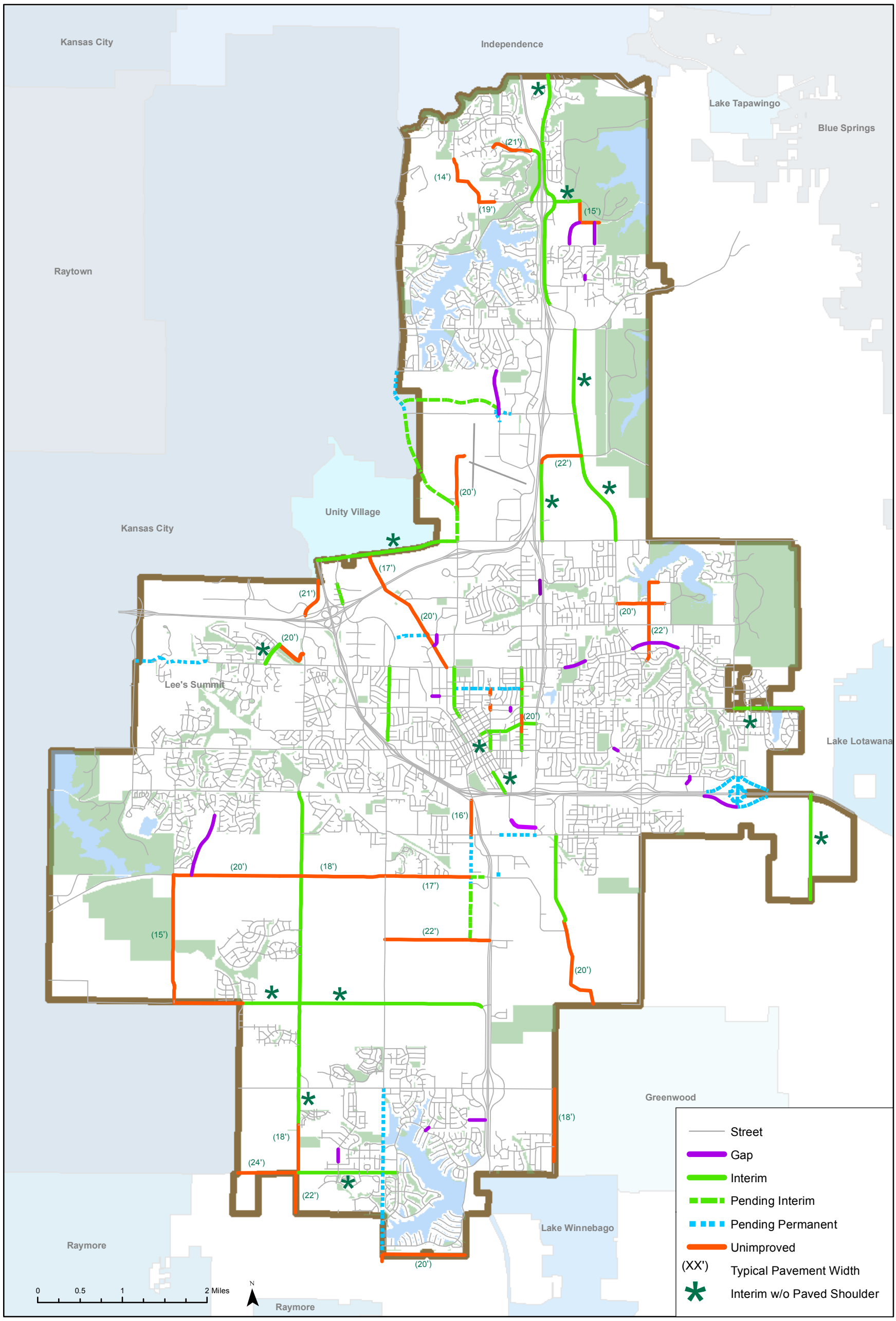
Exhibit 4 - Bicycle Transportation Plan



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

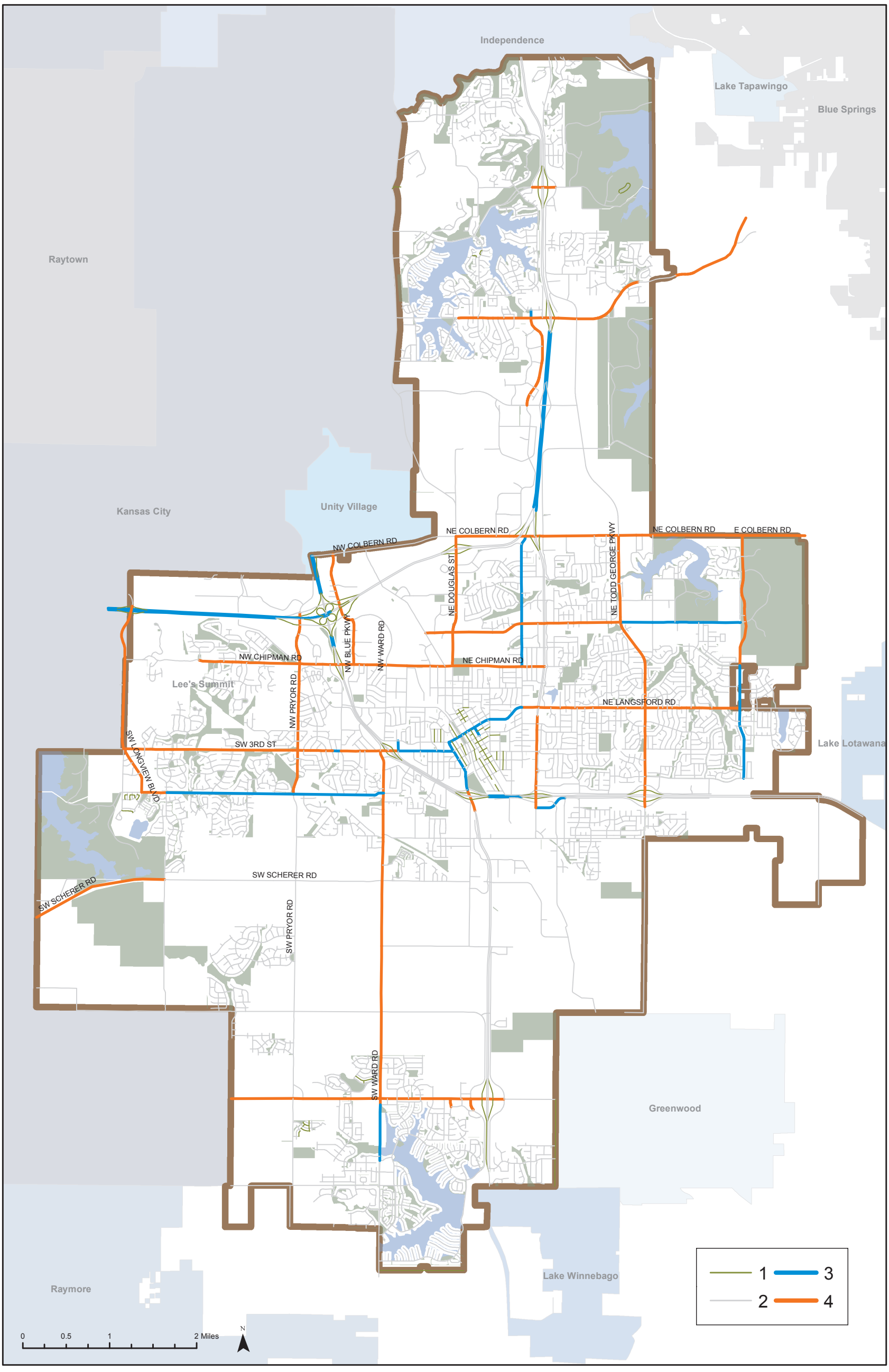
Exhibit 5 - Existing Functional Classification



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

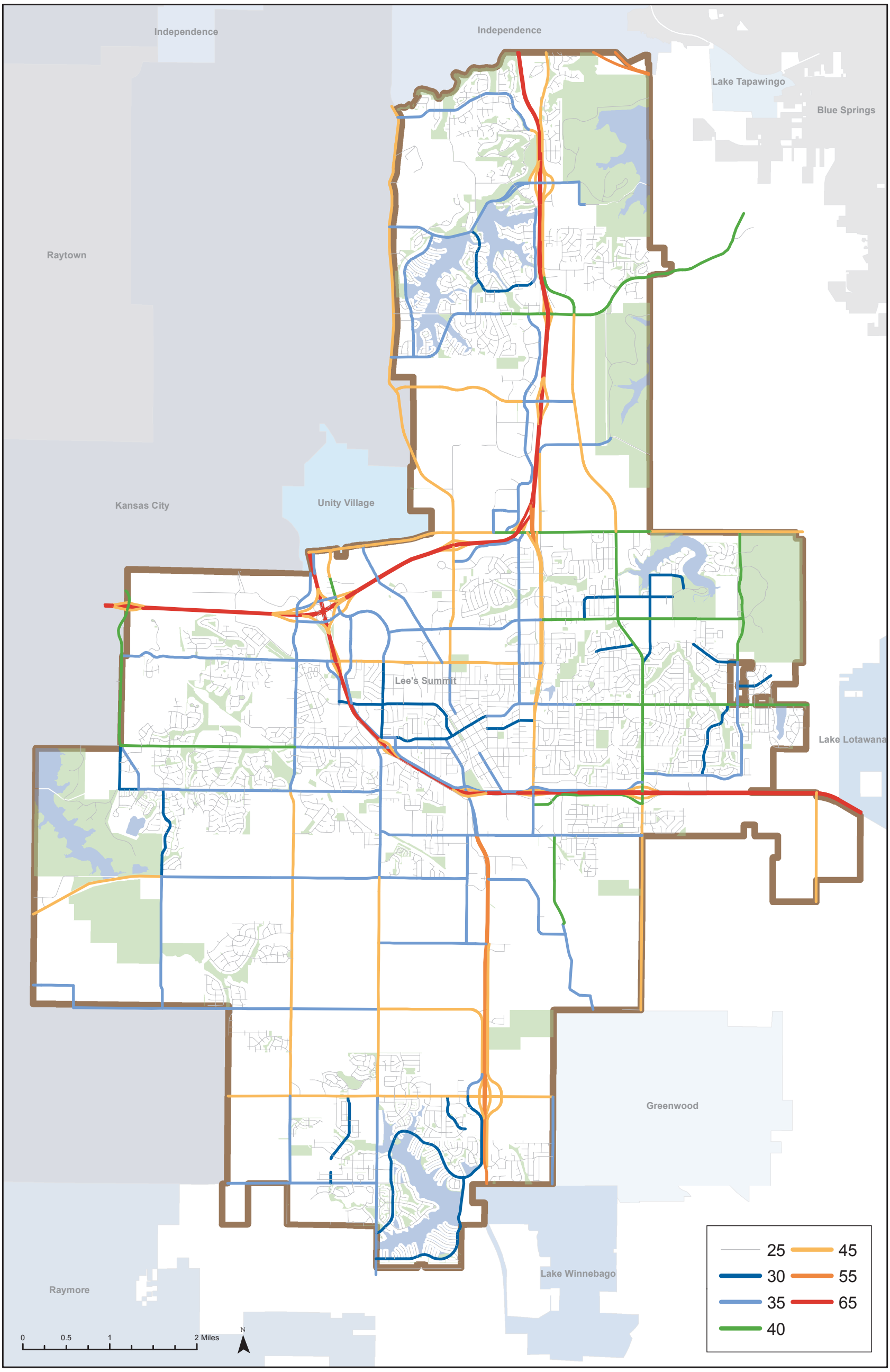
Exhibit 6 - Existing Unimproved and Interim Roadways and Network Gaps



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

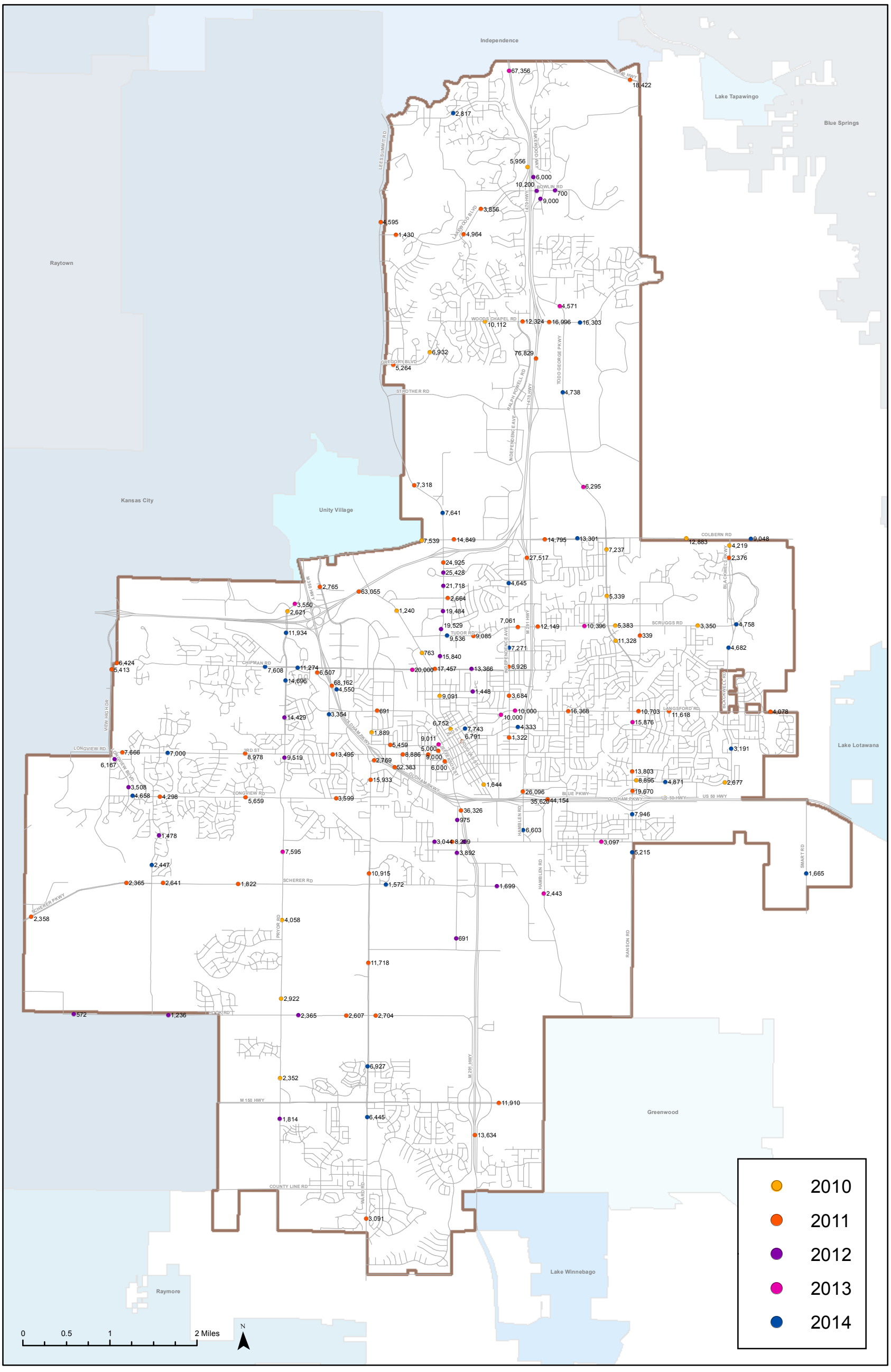
Exhibit 7 - Existing Number of Lanes



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

Exhibit 8 - Existing Speed Limits



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

Exhibit 9 - Existing Traffic Counts

Chapter 4 – Travel Conditions

The City has adopted standards for roadway design and access management that reflect roadway classification. These standards exhibit typical roadway characteristics that include number of lanes, speed and access spacing/control. Roadway performance goals have also been established by the City to benchmark public expectations of travel experience. To assess potential impacts of growth in the Lee's Summit area on the transportation system and its performance, the travel demand model was used. Different model scenarios were used to develop short/mid-term and long-term recommended roadway improvements. Short to mid-term roadway improvements are based on year 2025 analysis. Long-term roadway improvements are based on year 2040 analysis. This chapter addresses travel conditions for 2015, 2025 and 2040.

4.1 Roadway Design

Roadway design standards establish the physical characteristics of a road, capacity, travel expectations and govern performance. These standards are generally categorized based on the type of roadway functional classification and stage of roadway improvement. Functional classification and stage of roadway improvement (e.g. interim road or urban road) are described in Chapter 3. The same standards and related measures of performance apply to existing and future conditions. The Design and Construction Manual and Access Management Code adopted by the City of Lee's Summit contain more detailed criteria for roadway design based on the roadway functional class. Table 2 summarizes several primary roadway design characteristics.

Table 2 – Roadway Design Characteristics

Classification	Typical Design Speed (mph)	Typical Number of Lanes	Minimum Separation of Access Points (ft.)	Typical Right-of-Way Width (ft.)
Major Arterial	35-45	5-7	660	100-140
Minor Arterial	35-45	3-5	400	80-110
Industrial/Commercial Collector	30-40	2-3	300	60-90
Residential Collector	25-35	2	200	60
Local	25	2	-	50
Access	25	2	-	50

These roadway types may be median divided or undivided with and without turn lanes and have typical lane widths that vary from 11 feet to 15 feet depending on the roadway cross section. Public right-of-ways for roads also accommodate planned bicycle, pedestrian and transit facilities within or adjacent to the roadway according to various master plans and/or ordinances. The Greenway Master Plan and Bicycle Transportation Plan are illustrated on Exhibit 3 and Exhibit 4, respectively. Sidewalk is required per the Unified Development Ordinance on all roadways based on the roadway classification.

4.2 Roadway Travel

As discussed previously in the report, roadway functional classification describes how a roadway is intended to function with respect to travel mobility, speed, and level of access provided. The Thoroughfare Master Plan identifies future travel conditions, roadway improvements and associated functional roadway classifications.

Roadway travel characteristics represent how Lee's Summit motorists will experience travel. Travel characteristics are measured in terms of Level of Service of the roadway. Level of Service (LOS) is defined in the Highway Capacity Manual for various conditions of mobility, delay and driver comfort through a range of letters A-F (A the best and F the worst). Lee's Summit has adopted a LOS Policy for Intersection Operations (Resolution 04-15). This policy establishes a LOS goal C. The policy has been used in reference to corridor operations and applied to other transportation modes as well. MoDOT has established a Level of Service Goal D for its roads and highways (MoDOT Policy). Table 3 shows Level of Service thresholds for collectors, minor arterials, major arterials and freeways.

Table 3 – Roadway Travel Characteristics Maximum Daily Traffic per Lane

Characteristics	Collectors	Minor Arterials	Major Arterials	MoDOT Freeways
Unimpeded Travel (LOS A and B)	1,800	3,500	4,800	9,200
Relatively Uncongested Travel (LOS C)	2,600	4,600	6,400	12,300
Nearing Congested Travel Conditions (LOS D)	3,600	5,800	7,800	15,300
At Theoretical Capacity of Roadway (LOS E)	4,600	6,900	9,600	18,400
Over Theoretical Capacity of Roadway (LOS F)	>4,600	>6,900	>9,600	>18,400

It is the City's desire to provide a travel service condition where roadways are unimpeded or relatively uncongested to meet the LOS goal. However, during peak travel times (e.g. commuter peak hours) a more appropriate and realistic public acceptance of travel performance nearing congested conditions exists for some corridors. This macroscopic plan limits the operational analysis to roadway corridors and the identification of related corridor capacity improvements for current and future locations where traffic volumes are nearing, at or over the theoretical capacity of a roadway. This is not a plan that addresses microscopic analysis of intersections and intersection improvement needs.

4.3 Travel Demand Model

The travel demand model for the Lee's Summit area was developed using TransCAD transportation system modeling software. Inputs into the model included information about the current (2015) street and highways network and information about current (2015) socio-economic activity (residential dwelling units, square feet of commercial, industrial and office developments, population, employment, etc.). The current street and highways network is also referenced in Chapter 3, Existing Transportation System. The socio-economic activity is based on land use information referenced in Chapter 2, Land Use, with population, employment, trip generation, trip attraction, and societal behavior assumptions linked to land use. The City of Lee's Summit

Planning Department and Mid-America Regional Council maintain historical information, trends and forecast estimates of population, employment and demographic data. Other industry accepted transportation planning resources such as the Institute of Transportation Engineers Trip Generation Manual were also used to develop the socio-economic assumptions that influence travel demand. Information used for current conditions references the beginning of 2015 calendar year; it does not incorporate projects completed during 2015. The travel demand model is a representation of the street and highway network and of the users of this network. The travel demand model study area extends beyond the limits of the City of Lee's Summit to include surrounding communities of Kansas City, Raymore, Greenwood, Independence and unincorporated areas of Jackson County and Cass County.

The travel demand model methodology follows a process that has been established over a number of years and has been used in many metropolitan areas and cities throughout the country to forecast vehicle travel. The process consists of several steps:

- Represent the 2015 roadway network in TransCAD
- Obtain and categorize the 2015 socio-economic data by geographic area or Traffic Analysis Zone (TAZ)
- Generate vehicle trips for each land use by TAZ
- Distribute the trips between origin and destination TAZs
- Assign the traffic volumes to specific roadways

The travel model was calibrated using the existing transportation system conditions and socio-economic information. Model calibration involves running the model using this information and comparing model results to existing traffic counts. Modeled existing, 2015, traffic volumes are noted on Exhibit 10 and existing traffic counts are noted on Exhibit 9. Between each model run, model parameters are evaluated and adjusted in order to best reflect a balance of trip generation, trip distribution, existing travel behavior and driving characteristics in the Lee's Summit area. The TransCAD model, model features, model validation and associated calibrated parameters are summarized through a combination of the 2006 Travel Demand Model Documentation Report and model update technical records applicable to this project on file.

Future year analysis scenarios are modeled with projections and assumptions of socio-economic and transportation system changes. Those model scenarios are described in the following sections.

The model does not evaluate intersection operations; nor does the model report poor operations due to brief peaks in the traffic demand throughout the day (e.g. A.M. and P.M. commuter peak hours). These "spot" locations or peak periods of congestion are more suited for intersection specific analysis and localized improvement projects rather than thoroughfare master planning. However, the modeled daily traffic volumes in each traffic analysis scenario can be used to generate peak hour forecasts; a useful estimation for microscopic evaluation of future conditions at suspect locations.

4.4 Year 2015 Traffic Analysis

Year 2015 is used for model calibration. Section 4.3 provides more information on the Year 2015 traffic model formation. The calibrated model provides a baseline from which to examine future traffic impacts of socio-economic growth. The baseline model can also provide an indication of current traffic conditions. These conditions were verified by field observations and by comparison of model volumes with actual traffic counts.

The 2015 model results indicate that City maintained roadways have adequate capacity when considering daily traffic volume. While there may be periods during the day when a City maintained roadway operates at a near congested or congested condition, overall the roadway is operating at an acceptable level. Exceptions include City maintained roads like Chipman Road, Douglas Road, 3rd Street, Colbern Road, Todd George Parkway and Woods Chapel Road through and near the state maintained highway interchanges where existing conditions are near or at capacity considering daily traffic volume. Improvements to these municipal road segments should be considered in coordination with state interchange improvements. Those roadways operating near or at capacity are highways or interchanges maintained by MoDOT. None of these roads, highways or interchanges are shown over capacity in the daily volume model albeit peak hours have known conditions over capacity at most of these locations. Current locations where representative daily traffic volumes are near or at the roadway capacity are indicated on Exhibit 11, including:

- Ranson Road from US 50 to Bailey Road
- US 50 from I-470 to M-291
- I-470 from Raytown Road to north of US 40
- M-291 North from US 50 to I-470
- M-291 North interchange area with US 50
- M-291 South interchange area with US 50

While potential deficiencies in these roadways are recognized, MoDOT is the responsible agency for planning and constructing their respective improvements. The long-term funding picture for MoDOT is unclear at this time and it is understood that MoDOT will not focus on projects that address capacity needs in the near future, but rather system preservation and maintenance is their priority. The City of Lee's Summit has recognized MoDOT's funding shortfall and in the past successfully secured local funds to assist in making improvements to the state system which directly impacts the residents and businesses of Lee's Summit. Projects that have been completed or are currently in design in partnership by the City and MoDOT include interchange improvements to Strother Road/I-470, I-470/US 50, Blackwell Road/US 50 and M-291/US 50 South Junction. Similar partnerships will likely be needed in the future considering MoDOT's budget situation and will likely occur in coordination with development proposals that demonstrate a need for major capacity enhancements.

There are a number of roadways within the City constructed to former community contexts; unimproved roads or roads improved to an interim road standard. The definitions for unimproved and interim standards are addressed in Section 3.1. These types of roads now exist within an urban/suburban community context or within an area of the City that is transitioning from a rural to urban/suburban context. These roads will be expected to serve an increased volume of vehicles as future development occurs in Lee's Summit. Unimproved and interim standard roadways should be improvement project candidates to accommodate higher traffic volumes associated with denser development and/or to provide safer roads consistent with current road design standards. Modeled capacity or Level of Service deficiencies for unimproved and interim standard roads would be noted in the operational analysis and associated improvement recommendations. However, traffic volume based limitations according to policy for unimproved and interim standard roads to support development should also be considered. Unimproved and Interim Roadways are illustrated on Exhibit 6.

Unimproved roads may or may not have capacity issues depending on the traffic volume. Although some unimproved roads may not represent a capacity concern, public safety considerations of inadequate road conditions may contribute to its improvement need. Unimproved roadways or roadways with significant portions of unimproved sections within the City limits include, but are not limited to:

Arterial (Unimproved) Roadways:

- Chipman Road from Bent Tree Drive to View High Drive (Segments Only)
  (Project currently funded, pending construction 2017/2018)
- County Line Road from West City Limit to Pryor Road (Partly Other Jurisdiction)
- Doc Henry Road from M-150 Highway to South City Limit (Partly Other Jurisdiction)
- Hamblen Road from entrance to Resource Recovery Park to the South City Limit
- Lee's Summit Road from Colbern Road to the North City Limit
  (Project currently scheduled for construction 2015/2016)
- Pryor Road/Prairie Lane from Napa Valley Drive to the South City Limit
- Ranson Road from Bailey Road to the South City Limit (Party Other Jurisdictions)
- Scherer Road from Sampson Road to Jefferson Street
- Strother Road from Lee's Summit Road to Manhattan Drive
  (Interim Road Project currently in construction, scheduled for completion 2016)
- Stuart Road from Ward Road to M-291
- 163rd Street from Ward Road to East City Limit (Partly Other Jurisdiction)

Collector (Unimproved) Roadways:

- Bowlin Road from Bowlin Road (east-west) to south terminus of road
- Douglas Road from Lee's Summit Road to north terminus of road
- Jefferson Street from Stuart Road to Persels Road
  (Project currently scheduled for construction 2015/2016, Interim Standard south of Scherer Road)
- Jefferson Street from Persels Road to Oldham Road
- Lienweber Road from Rice Road to Todd George Parkway
- Lowenstein Road from Black Twig Lane to Pryor Road
- Main Street from Chipman Road to Colbern Road
- Maybrook Road from Saint Andrews Circle to south of Oaks Ridge Meadows
- Saint Andrews Circle from Maybrook Road to Fairway Homes Drive
- Sampson Road from Hook Road to Scherer Road
- Todd George Road from Todd George Road (east-west) to Peters Drive
- Tudor Road from Todd George Parkway to Todd George Road
- Velie Road from east of Oaks Ridge Drive to Anderson Drive

While not a modeled capacity concern, improvements may be required to the unimproved road prior to nearby land development based on the Unimproved Road Policy. This policy restricts development based on road condition, design characteristics and traffic volume. Non-residential development is not permitted on an unimproved roadway. Residential development can occur on unimproved roads until the traffic volume reaches 50% of the roadway capacity (approximately 5,000 ADT). Furthermore, any one-lane sections of unimproved roads must be mitigated for residential development to occur. Unimproved local and collector roads are not allowed in new construction, but several exist within the older downtown area. Consequently, all unimproved roads are improvement project candidates.

There are also a number of roadways that have been improved from an unimproved condition to an interim standard. These interim standard roadways have limitations on development based on capacity and traffic volume similar to unimproved roads. Therefore, these roadways are also candidates for improvement. Interim road sections within City limits include, but are not limited to:

Arterial (Interim) Roadways:

- 3rd Street from Green Street to M-291 Highway* (Partial Urban Standards)
- Bowlin Road from Lakewood Way to East City Limit*
- Chipman Road from Bent Tree Drive to View High Drive (Majority)*
  (Project currently funded, pending construction 2017/2018)
- Colbern Road from Blue Parkway to Douglas Road*
- County Line Road from Pryor Road to Ward Road*
- Douglas Road from Chipman Road to 2nd Street* (Partial Paved Shoulder)
- Douglas Road from 7th Street to Blue Parkway*
- Independence Avenue from Chipman Road to 5th Street* (Partial Urban Standards)
- Hamblen Road from Bailey Road to entrance to Resource Recovery Park*
- Hook Road from Ward Road to M-291 Highway
- Hook Road from the West City Limit to Ward Road*
- Pryor Road from Longview Road to M-150 Highway
- Pryor Road from Quarry Park Road to North City Limit*
- Pryor Road from M-150 Highway to Napa Valley Drive*
- Langsford Road from Blackwell Road to East City Limit*
- Smart Road from Oldham Road to the South City Limit*
- Todd George Parkway from Colbern Road to Woods Chapel Road*
- Ward Road from County Line Road to the South City Limit (and the East side North to M-150 Highway)*
  (Project currently funded, pending construction in 2016/2017)

Collector (Interim) Roadways:

- Anderson Drive from Lakewood Boulevard to Velie Road*
- Black Twig Lane from Chipman Road to Lowenstein Road* (Partial Urban Standards)
- Browning Road south of Oldham Parkway* (Partial Urban Standards)
- Grand Street from 3rd Street to 5th Street*
- Lakewood Way from Bowlin Road to the North City Limit*
- Lakewood Way from Lakewood Court to Wildwood Drive* (Partial Paved Shoulder)
- Orchard Street from Douglas Road to Independence Avenue*
  (Project currently scheduled for construction 2015)
- Rice Road from Lienweber Road to Colbern Road*
- Ward Road from Chipman Road to 2nd Street (Partial Urban Standards)

Those interim roads noted with an asterisk (*) do not have paved shoulders. Additional development may occur on interim roads until the volume reaches 80% of the roadway capacity (approximately 8,000 ADT). While this policy restriction is not directly related to the calculated Level of Service (LOS), its impediment to continued development is another consideration, unless the policy is revised or waived. Among those interim roadways

listed above, only Douglas Road from Chipman Road to 2nd Street has an existing ADT over 8,000 vehicles. However, only portions of Douglas experience such volume and it is marginally above the 8,000 ADT threshold.

As noted, not all of the unimproved and interim roadways listed above are operating at a poor LOS or serving a high volume of vehicles. Improvements to an interim roadway standard or beyond would not only improve capacity and safety, but permit additional development activity to occur. Thus, an economic benefit by improving these roadways to an interim standard or better may also be realized. Project prioritization of unimproved and interim standard road upgrades may be influenced by the traffic volume on such roads, road width, road condition or the desire for adjacent economic activity.

New local and collector roads shall not be constructed to an interim standard. New local and collector roads must be constructed to the urban standard *(described in Section 3.1)* with safety and long-term capacity requirements in mind. However, there are several existing local roads that remain in an interim or unimproved condition within the older downtown area which may also be candidates for improvement or reconstruction. Those existing unimproved or interim standard local roads are not included among the list of Thoroughfare Master Plan projects, but may otherwise be considered for transportation funding.

Then there are some roadway network gaps along various collector and/or arterial roadway corridors. Gaps are defined in Section 3.1 and generally do not include local street gaps or planned roadway connections associated with current and future development activity. Gaps, shown on Exhibit 6, when connected improve system performance. Improving access also often improves the quality of life for residents and business exposure. These existing gaps are noted below:

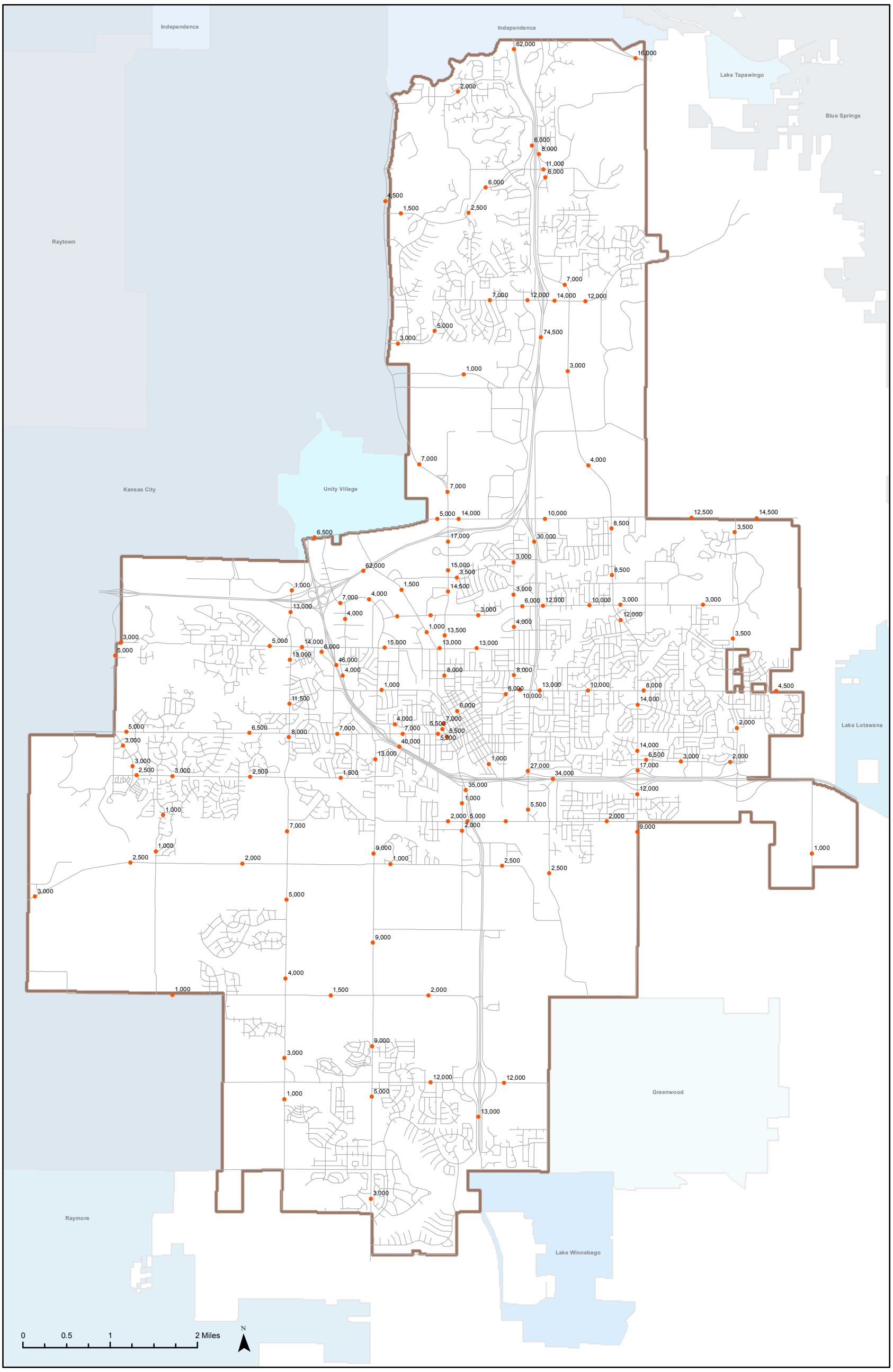
- ***5th Street*** – A small gap in the road network between Country Lane and Greenridge Drive, approximately 250 feet in length, results in a significant lack of connectivity. This collector road provides access to a surrounding area that includes an active park, elementary school and multiple residential subdivisions. These homes and facilities are disconnected by the network gap and the controlled access to/from the area along the nearest major arterial does not effectively serve many residents without improved connectivity. This project is anticipated to be a City led project due to the built-out conditions. Right-of-way for this street connection has already been acquired.
- ***Battery Drive*** - A gap in the network exists between Shenandoah Drive and Blue Parkway. Providing this collector road connection would improve connectivity of the system and potentially allow for additional development. This project is expected to be led by development.
- ***Browning Road*** - A gap in the network exists between west of Hamblen Road. Providing this industrial road connection would improve connectivity of the system, potentially allow for redevelopment and improved access management of Oldham Parkway near the US 50 Highway and M-291 (North Junction) Interchange. This project is expected to be led by development or interchange improvements.
- ***Cheddington Drive*** – A gap in the network exists between Ascot Drive and the M-291 outer road. Providing this collector road connection would improve connectivity of the system and potentially allow for additional development. This project is expected to be led by development.
- ***Chipman Road*** - Two gaps currently exist along the Chipman Road corridor. A section of collector road gap located east of M-291 has previously been considered for construction but due to environmental factors, excessive bridge costs and social priorities the design was not constructed. Construction of this segment of roadway may be more appropriate for 2040 conditions. The other gap along the collector roadway is between Todd George Parkway and Lyon Drive. The City owns a portion of the right-of-way required to make this connection. Constructing this segment of roadway will provide connectivity along

Chipman Road for the east side of the City. This project may also improve development opportunities in the vicinity of Scruggs Road, Todd George Road, etc. The Chipman Road gap east of Todd George Parkway should be considered a priority over the Chipman Road gap east of M-291.

- ***Commerce Drive/Sloan Street*** – A gap in the network exists between Tudor Road and Main Street. An extension of Sloan Street/Commerce Drive between Tudor Road and Main Street would provide a collector road connection that better accommodates traffic, improves access, promotes adjacent development and enables the implementation of greater access management along Tudor Road preserving its capacity. This project may be led by development or initiated by the City given the City's ownership interests in adjacent property, municipal building and existing road network.
- ***Gateway Drive*** – A small gap in the collector road network between Delta School Road and Gateway Drive results in a lack of connectivity. Completing the gap connection would connect several neighborhoods to a middle school and provide needed alternate access. This project would likely need to be City initiated due to the built-out conditions surrounding the gap. A majority of the necessary right-of-way exists and the remaining right-of-way can be obtained through an undeveloped property that abuts the dead end road on either side of the gap.
- ***Independence Avenue*** – As development continues to occur in the northwest quadrant of Strother Road and I-470, it is anticipated that the extension of Independence Avenue, a collector road, from its current terminus (south of Newport Drive) to Strother Road would improve connectivity in this area. Construction of this segment is likely development related.
- ***Jamestown Drive/Gateway Drive*** – Both of these collector roadways currently serve development in the northeast quadrant of Woods Chapel Road/I-470. Extension of these roadways from their existing terminus to Bowlin Road would significantly improve connectivity in this area. Construction of this road segment may be development driven or a partnership between development/City.
- ***Lido Drive*** – The segment of Lido Drive, a local road, between Raintree Drive and Stacey Drive was never constructed. Some of the right-of-way has already been acquired for this gap construction. The remaining property needed for this road connection to be made is owned by the Raintree Lake Property group. Connectivity within the area will be marginally improved by making this connection. This project, albeit a low priority, is expected to be a City led project due to the built-out conditions. In the interim, a non-motorized transportation accommodation may be preferred.
- ***Longview Boulevard –*** With residential development south of Longview Road, a segment of new north/south major arterial road, Longview Boulevard, has been constructed. The final plan for Longview Boulevard is for the major arterial roadway to extend south to Scherer Road then farther south to M-150 in alignment with Horridge Road in Kansas City, MO. This would improve connectivity in the area and potentially allow for additional development. The connection between Longview Road and Scherer Road would also alleviate traffic concerns along the nearby parallel residential collector (Sampson Road). This project is expected to be led by development, but the small gap north of Scherer Road to the developing subdivision along Longview Road may be City initiated since the adjacent property in this area is owned by PRI. The portions of Longview Boulevard south of Scherer Road remain a planned thoroughfare.
- ***Rice Road/Langsford Road*** – Rice Road is an outer road or commercial collector paralleling M-291 north/south. As Lee's Summit has matured, the area of Langsford Road and Rice Road has resulted in high density commercial use generating a high volume of traffic. The existing roadway configuration does not meet access management standards and consequently exhibits a high number of crashes and substantial congestion. To address crash history and congestion in this area, the City may support a project to re-align Rice Road and improve its connection to Langsford Road. The project could improve

operations along the corridor while also providing additional development or re-development opportunities. In interim, additional access management should be considered along Langsford Road.

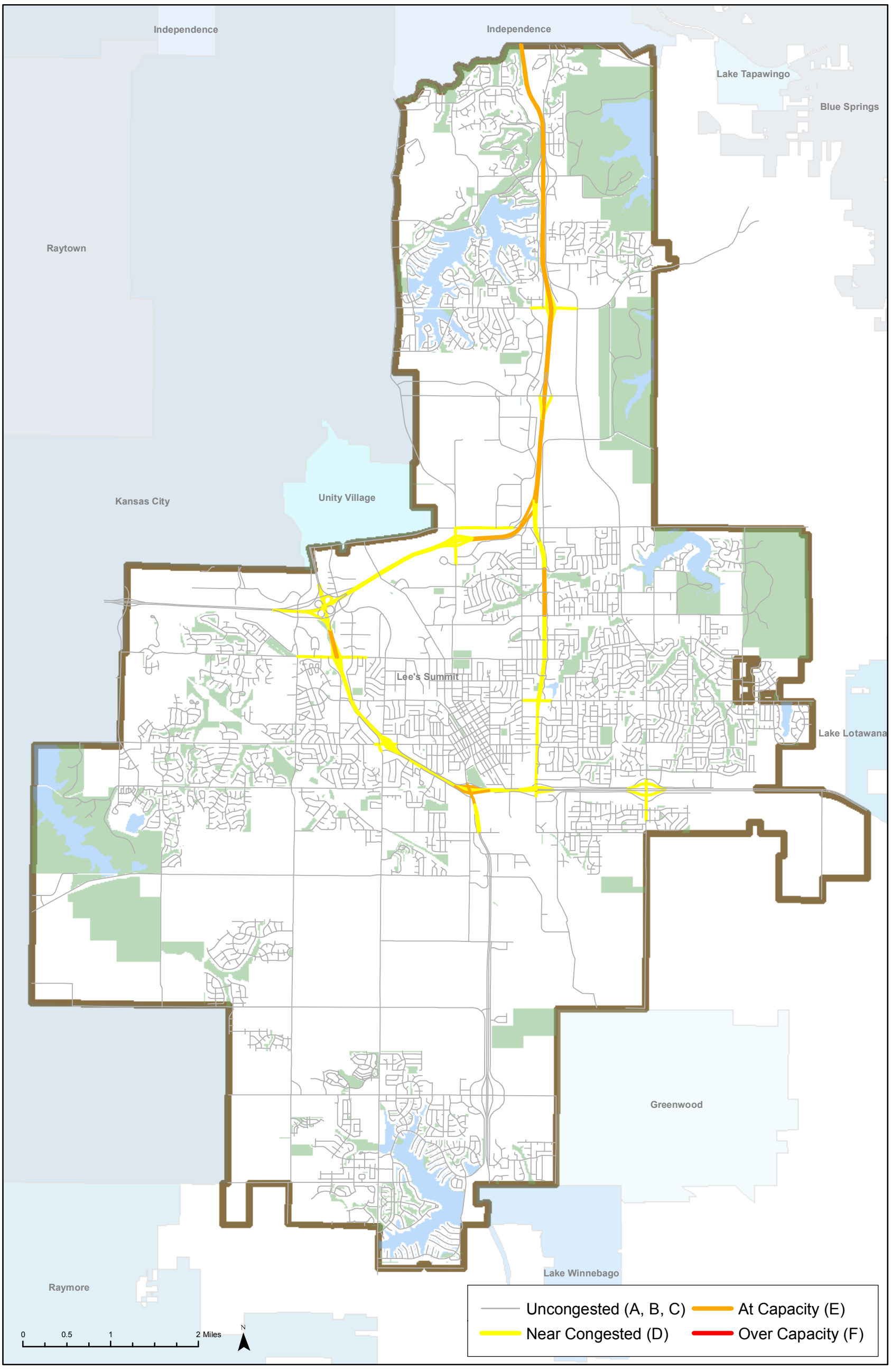
- ***Stoney Creek Drive*** – The segment of Stoney Creek Drive between Whistle Drive and 44th Street is expected to be built by development of the residential subdivision. Construction of Stoney Creek Drive, a collector road, will provide connectivity for residential traffic within this area of the City.
- ***Windsor Drive –*** There is a gap along Windsor Drive south of Mulberry Street (aligning with White Drive) towards Deerbrook Street. A stream crossing is needed to complete this highway outer road connection. Once connected, the roadway supports continued development in the area as well as improved access for existing businesses and neighborhoods. This project may require City participation, but will likely be initiated by development interests.



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

Exhibit 10 - 2015 Model Traffic Volumes



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

Exhibit 11 - 2015 Model Traffic Conditions

4.5 Year 2025 Traffic Analysis

A year 2025 traffic forecast was prepared in order to provide an indication of travel demands over the mid-term condition. This future scenario reflects changes to the roadway network to include "committed" projects and socio-economic growth forecasts for the year 2025. References for the socio-economic data and model formation can be found in Chapter 2 and Section 4.3.

4.5.1 Committed Projects

The street and highway network was updated to include projects that involve changes in roadway capacity that are included in the Lee's Summit Capital Improvement Program (CIP), in MARC's Transportation Improvement Program (TIP), in an executed agreement and imminent implementation through development or where project design has been completed and funding for construction is very likely by 2025. The network that includes these projects is called 2025 Traffic Network. The committed projects are listed in Table 4.

Table 4 – List of Committed Projects

ID	Route	From	To	Description	Lead
1	Bailey Road	M-291	Hamblen Road	New 2 lane	City
2	Battery Drive	Blue Parkway	Shenandoah Drive	Construct gap	Private
3	Blackwell Road Interchange	Todd George Pkwy	Smart Road	New Interchange & Outer Rd	City
4	Blue Parkway	Colbern Road	South of Colbern Road	Re-alignment and Capacity Enhancements	City
5	Chipman Road	View High Drive	Bent Tree Drive	Improve to 3 lane	City
6	Decker Street	Thompson Road	16th Street	Construct gap	City
7	Independence Ave	Woods Chapel Road	Dick Howser Drive	Construct gap	Private
8	Jamestown Drive	Kenwood Drive	Bowlin Road	Construct gap	Private
9	Jefferson Street	Scherer Road	Persels Road	Widen from 2 lane to 3 lane	City
10	Jefferson Street	Stuart Road	Scherer Road	Reconstruct as 2 lane with paved shoulder (Interim)	City
11	Lee's Summit Road	Colbern Road	83rd Street	Widen from 2 lane to 3 lane	City
12	Lee's Summit Road	83rd Street	Gregory Boulevard	Widen from 2 lane to 4 lane	Kansas City
13	M-291 South Interchange	Persels Road	Blue Parkway	New Interchange	MoDOT
14	Orchard Street	Douglas Street	Independence Avenue	Reconstruct as wide 2 lane	City
15	Scherer Road	Jefferson Street	M-291	New 2 lane	City
16	Sloan Street	Tudor Road	Victoria Drive	Construct 2 lane	City
17	Stoney Creek Drive	44th Street	Whistle Drive	Construct gap	Private
18	Strother Road	Lee's Summit Road	Ralph Powell Road	Relocate and Reconstruct as 2 lane with paved shoulder (Interim)	City
19	Tudor Road	Douglas Road	Ward Road	New 4 lane	City
20	Ward Road	M-150	South City Limit	Improve to 3 lane	City

4.5.2 2025 Traffic Model Results

The first step in the analysis of anticipated future transportation impacts was to forecast Year 2025 traffic. The 2025 traffic forecasts provide information that can be used to assess shorter term street and highway needs. The 2025 traffic model results reflect the year 2025 socio-economic projections and the street and highway network that includes committed projects. The anticipated traffic operating conditions with the 2025 traffic model are shown on Exhibit 12.

The results of the year 2025 traffic assignment on the roadway network demonstrate an anticipated impact from expected levels of traffic growth over the next ten years. State routes identified in the existing condition as having capacity issues continue to operate at a condition nearing, at or over capacity. These locations include:

- ***Ranson Road*** from US 50 to Bailey Road is forecasted to have near congested conditions.
- ***M-291 South Junction*** (Jefferson Street) interchange area and the section of M-291 south of US 50. This project is proposed to be constructed in 2017/2018. However, congestion on M-291 south of the interchange will not likely be addressed with the interchange project.
- ***M-291 North Junction*** (Hamblen Road) interchange area has a projected condition near or at capacity.
- ***I-470*** from Raytown Road to north of US 40 is at capacity with some segments of highway/interstate over capacity, particularly north of Woods Chapel Road. Congestion here is also shown to divert additional traffic to Independence Avenue/Ralph Powell and to Lakewood Way.
- ***US 50*** is forecasted to be at capacity between I-470 and M-291 North Junction and near capacity on segments continuing eastward through the interchange at Todd George Parkway.
- ***M-291*** between US 50 and I-470 has a significant segment at capacity within the central portion of the corridor and other segments near capacity on either end of the corridor, but the corridor is not over capacity.

The interchanges of US 50 with Chipman Road, 3rd Street and Todd George Parkway as well as interchanges of I-470 with Douglas Road, Colbern Road, and Woods Chapel Road operate at a more congested level too.

Considering 2025 traffic volumes, some roadways maintained by the City of Lee's Summit may start to operate at a more congested level. Several municipal roads previously discussed above and in Section 4.4, Year 2015 Traffic Analysis, that extend more or less a half mile from the state interchanges will continue to experience congestion at or near capacity. As example, Chipman Road from Pryor Road to Blue Parkway through the interchange at US 50 will likely experience near congested conditions. Those roadways influenced by poor interchange operations should be improvement project candidates in coordination with MoDOT's highway and interchange projects. In addition, the following City maintained roadways start operating above uncongested levels in the 2025 scenario:

- 3rd Street from Pryor Road to Murray Road
- Colbern Road from US 350/US 50 to I-470
- Douglas Road from Elm Street to Chipman Road
- Douglas Road from Victoria Street to Colbern Road
- Independence Avenue/Town Centre Boulevard between Colbern Road and Strother Road
- Lakewood Way from Woods Chapel Road to US 40
- Ward Road between Chipman Road and Blue Parkway (North)

3rd Street – The section of 3rd Street from Pryor Road to Murray Road is shown near congested levels in 2025. This section of road has one lane eastbound, two lanes westbound and lacks turn lanes for driveways and intersections. The road should be improved to a five-lane section matching 3rd Street west of Pryor Road and 3rd Street east of Murray Road.

Colbern Road – Colbern Road is a regionally connected major arterial route in the metropolitan area (also known as Bannister Road and 95th Street). Colbern Road is constructed to a multi-lane urban standard east of Douglas Road and a two-lane interim standard west of Douglas Road. Although the model illustrates the roadway as only nearing congested levels, Colbern Road users are not best served in its current configuration and its configuration does not effectively accommodate growth. The lack of access between Colbern Road, I-470 and M-291 as well as the influence of degrading state interchange operations at Douglas Road leaves no viable Colbern Road improvement strategy east of Douglas Road to mitigate this growing delay. To improve the operations on Colbern Road east of Douglas Road, alternate travel routes should be developed with improved access to I-470/M-291 in coordination with MoDOT as a traffic diversion. While the model illustrates increased congestion on Colbern Road west of Douglas Road principally due to development forecasts on its south side, this roadway should also be a candidate for improvement based on safety, and may be seen as an opportunity to provide road improvements for an economic benefit. Improving Colbern Road to a four-lane section with turn lanes would accommodate higher traffic volumes discussed in future scenarios, provide a safer roadway, build the roadway to current standards, and provide a potential economic benefit for possible development.

Douglas Road –Segments of Douglas Road south of Colbern Road to north of the downtown area are expected to operate near congested levels. Douglas Road south of Colbern Road and north of Chipman Road is built as a four-lane roadway, primarily divided, with turn lanes. Due to limited right-of-way along the corridor and built-out development conditions, support for a project that provides additional capacity on this segment of Douglas Road is not expected. Other methods of mitigating congestion, such as turn lanes at intersections, access control and coordinated signal operations, should be investigated. Parallel roadways, like Main Street between Chipman Road and Colbern Road, will likely provide some relief when improved. These parallel routes become more important as the level of congestion along Douglas Road increases to its capacity. The segment of Douglas Road south of Chipman Road and north of the downtown core is an interim standard roadway bound primarily by residential development. Right-of-way will be limited along this segment of the corridor and providing additional through lane capacity will probably not be supported in an effort to retain historical aspects of this corridor entering the downtown area. Reconstructing this section of Douglas Road to the urban standard with multi-modal accommodations and turn lanes should be considered.

Independence Avenue/Town Centre Boulevard - The segment of Independence Avenue and Town Centre Boulevard between Colbern Road and Strother Road has a capacity condition is similar to Ward Road described below. If nearby development does not occur or occurs with land uses and density substantially less than projected in the model, then roadway widening for additional through capacity will most likely not be needed and adequate conditions may be provided with capacity enhancements like turn lanes, access management and traffic signals.

Lakewood Way - Lakewood Way from Woods Chapel Road to US-40 may operate at a higher level of congestion due to the operations of I-470. If I-470 is congested, as illustrated in the 2025 model results, then traffic may use Lakewood Way as an alternate route. Improvement of the roadway surface and addition of paved shoulders may improve operations and safety of Lakewood Way in the event of increased demand. The addition of lanes along Lakewood Way is not recommended based on year 2025 model results.

Ward Road - The operation of Ward Road between Chipman Road and Blue Parkway (North) is directly correlated to proposed development in the adjacent area. If nearby development does not occur, roadway expansion from two-lanes to four-lanes can be deferred.

Considering 2025 modeled traffic volumes, some interim standard roads maintained by the City of Lee's Summit will likely exceed the traffic volume threshold for continued development based on the Unimproved Road Policy. The following City maintained roadways will need improvement in consideration of the Unimproved Road Policy (and Interim Road) for development to continue beyond the 2025 scenario:

- Colbern Road between US-350/US-50 and Douglas Road
- Douglas Road between Chipman Road and 2nd Street
- Independence Avenue between Chipman Road and 3rd Street
- Lakewood Way between Woods Chapel Road and the North City Limit
- Pryor Road between Longview Road and M-150
- Ranson Road between Bailey Road and the South City Limit
- Todd George Parkway between Strother Road and Colbern Road

Colbern Road – The ADT on Colbern Road between US 350/US 50 and Douglas is expected to exceed 10,000 vehicles. This section of Colbern Road is discussed above in more detail as a capacity project with operational and safety benefits.

Douglas Road – Douglas Road between Chipman Road and 2nd Street has a projected 2025 ADT between 8,000 and 10,000 vehicles. This roadway is discussed above in more detail with near congested conditions.

Independence Avenue – Independence Avenue between Chipman Road and 3rd Street has a projected 2025 ADT between 8,000 and 10,000 vehicles. The capacity should be adequate under existing interim road conditions, but permanent road improvements/urban standards should be considered for Independence Avenue from Chipman Road to 5th Street (may be phased at 2nd Street or 3rd Street). Independence Avenue closely parallels M-291 Highway, intersecting several arterials and similarly improved collectors like 5th Street and Orchard Street. Parts of Independence Avenue south of Chipman Road already exhibit urban standards. This corridor enhances connectivity to downtown and community center and is a preferred alternative route for traffic distribution. An urban standard would positively impact quality of life, incorporate multi-modal plan elements and comply with the Unimproved Road Policy.

Lakewood Way – The section of Lakewood Way between Woods Chapel Road and the North City Limit has a projected ADT near 10,000 vehicles. The capacity should be adequate considering the presence of turn lanes until failure of I-470 operations realize. This roadway is discussed above in more detail as a near congested condition.

Pryor Road – Pryor Road from Longview Road to Hook Road is expected to have an ADT between 8,000 and 10,000 vehicles. The section of Pryor Road south of Hook Road to M-150 is expected to have an ADT between 6,000 and 8,000 vehicles. The capacity should be adequate under existing interim road conditions, but permanent road improvements/urban standards should be considered to comply with the Unimproved Road Policy and enhance the quality of life within this developing area of the City.

Ranson Road – The section of Ranson Road south of Bailey Road has a projected ADT in 2025 in excess of 10,000 vehicles. However, this roadway is partly owned by the State, otherwise with a shared City/County ownership that is entirely maintained by the County. Much of the projected traffic, a doubling of the existing volume, is contingent on development activity from 2015 to 2025. Roadway improvements should be considered as development occurs or until congested conditions are experienced. Paved shoulders would improve safety and have a marginal operational benefit.

Todd George Parkway – Todd George Parkway from Strother Road to Colbern Road has an expected ADT of approximately 10,000 vehicles. North of Strother Road, the ADT falls to 7,000 vehicles. The increase in traffic is mostly associated with forecasted congestion on I-470. The two lane roadway should have adequate capacity since there is limited-to-no access. As development occurs adjacent to Todd George Parkway, improvements will become necessary. The construction of paved shoulders would improve safety and have a marginal operational benefit.

Any unimproved roadways listed in Section 4.4 should still be considered for improvement to an interim standard or greater based on development needs. Construction of gaps in the roadway network should also be considered to improve the overall system performance. Gaps, such as 5th Street and Delta School Road, are identified in Section 4.4 and on Exhibit 6 with unimproved and interim roadways. Those gaps that most efficiently connect more residents to the higher classification roadways and public amenities/facilities (e.g. parks, schools, activity centers) have a greater priority. Project complexities and those gaps with right-of-way already acquired may influence priority as well.

4.5.3 Recommended 2025 Projects

The results of the 2025 analysis shows that there are projected to be additional roadway needs to address traffic congestion and in some cases, to provide streets constructed at an appropriate standard for development to meet the forecasted traffic volumes. Although the model illustrates some roadways as beginning to operate at near congested levels, it is important to consider the model is a tool in future planning and not all identified unimproved roads, interim roads, roads with congestion or gaps have a 2025 priority improvement recommended. Similarly, there are many planned roads within undeveloped areas of the City that could be either initiated by the City or private development by the year 2025. Planned arterial and collector roads can be identified on the Thoroughfare Master Plan.

The following projects are recommended based on the 2025 traffic analysis:

- ***3rd Street –*** Improve 3rd Street from Pryor Road to Murray Road as a five-lane section to mitigate increasing levels of congestion and enhance safety.
- ***Colbern Road*** – Improvement of Colbern Road from an interim roadway to a four-lane roadway with turn lanes that meets current urban standards will address the near congested capacity issue expected in 2025. A secondary benefit may be a potential economic benefit related to potential development along this corridor.
- ***Ward Road*** - Improvement of Ward Road from Chipman Road to Blue Parkway (North) to a four-lane divided roadway. This improvement may be expected to occur prior to 2025 with adjacent development as noted previously.

There are also some year 2025 scenario project recommendations principally based on safety and the encouragement and accommodation of economic activity rather than capacity. Those recommended projects are listed below:

- ***Independence Avenue*** – Reconstruct the unimproved/interim road between Chipman road and 5th Street to an urban standard. This project could be done in phases that terminate at major intersections (e.g. 2nd Street or 3rd Street). The basis for recommendation is outlined in the previous
- ***Jefferson Street*** – Reconstruct the unimproved road to an urban standard that supports safer operating conditions and nearby economic activity.
- ***Main Street (and Commerce Drive)*** – The segment of Main Street from Chipman Road to Colbern Road is not illustrated as a capacity concern by 2025 model results. However, it is an unimproved road. Further, the parallel route to Main Street, Douglas Road, is beginning to show some signs of near congestion in 2025. Reconstruction of the existing roadway to a two or three-lane section, interim standard or urban standard as appropriate, would provide a roadway that is safer and more accommodating for development. Much of the surrounding area along Main Street has significant development potential. The planned roadway connection between Tudor at Sloan and Main Street (e.g. Commerce Drive or Sloan Street), a roadway gap, would be included as part of this project. This project may be completed in multiple phases and over a longer period of time (i.e. 2040): 1) Chipman Road to Victoria Drive and 2) Victoria Drive to Colbern Road. Likewise, Commerce Drive (or Sloan Street) may be completed independent of Main Street north of Tudor Road.
- ***Pryor Road*** – The segment of Pryor Road north of I-470 to Colbern Road is not illustrated as a capacity concern by 2025 model results. Reconstruction of the existing interim roadway to an urban section capable of accommodating long-term demand (e.g. 4/5 lanes) would provide a roadway that is safer, ready for development and is built to handle increased traffic that may occur as an alternate route for predicted congestion along the state highways.
- ***Pryor Road*** – The segment of Pryor Road south of Longview Road to M-150 Highway is not illustrated as a capacity concern by 2025 model results. However, the daily traffic volume is rapidly increasing with current volumes approaching the threshold for continued development in the Unimproved Road Policy and 2025 forecasts that exceed that threshold. Reconstruction of the existing interim roadway to an urban section would provide a roadway that is safer, multi-modal, contextually appropriate for the surrounding suburban area and ready for continued development. This project could be phased at Hook Road, with the section north of Hook Road a higher priority than the section south of Hook Road.
- ***Scherer Road*** – The segment of Scherer Road from Sampson Road to Jefferson Street is not illustrated as a capacity concern by 2025 model results. Reconstruction of the existing unimproved roadway would provide a roadway that is safer and is built to current standards, either interim standards or to future urban standards. The project may be completed as two smaller projects as follows: a) Sampson Road to Ward Road and b) Ward Road to Jefferson Street. Scherer Road from Jefferson Street to M-291 is proposed to be constructed as two 12-foot lanes with 6-foot paved shoulders in 2015.

As discussed in Section 4.4, several gaps in the roadway network are located throughout the City. Completing these public roadway connections will improve the connectivity, livability and efficiency in the movement of people, goods and services. A number of gap connections can be expected by the private sector as development occurs, others will require City resources to complete especially within established areas of the community. Some gaps already have right-of-way acquired. All gaps vary in complexity and potential benefits. Consequently, not all gap improvement projects have the same need and priority. City initiated gap projects recommended in the 2025 scenario include:

- ***5th Street*** – Connect the two-lane collector street gap between Country Lane and Greenridge Drive.
- ***Chipman Road*** – Connect the two-lane collector street gap between Todd George Parkway and Lyon Drive.
- ***Gateway Drive*** – Connect the two-lane collector street gap between Delta School Road and Gateway Drive.
- ***Longview Boulevard*** – Construct two-lanes of planned four-lane divided major arterial between Scherer Road and Longview Road. This improvement, since limited in scope is considered a gap within the larger plan for Longview Boulevard. This gap should be considered when the developing subdivision along Longview Road has privately completed construction of the portion of Longview Boulevard between Longview Road and its southern plat boundary.

Other than the aforementioned planned roadway gaps, there are no new arterial or collector roadways needed based on the 2025 traffic analysis. These planned corridors are conceptually shown on the Thoroughfare Master Plan and may be recommended in support of economic development activity and should otherwise be built at the time vacant or underutilized property is developed.

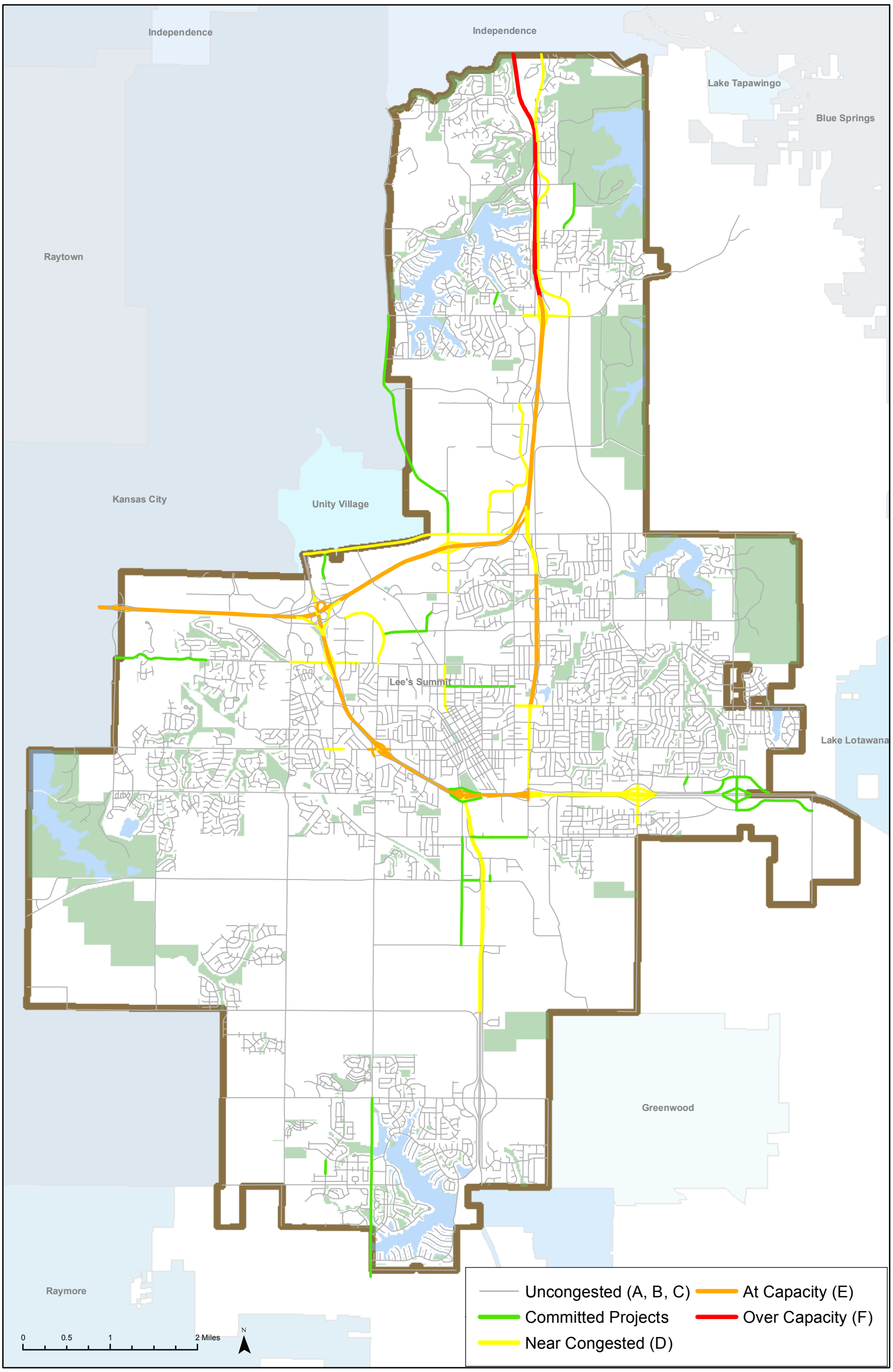
Project needs are only identified within the Lee's Summit city limits. In reality project needs extend beyond the city's boundaries into other jurisdictions. For example, Lee's Summit Road needs capacity and safety improvements through Kansas City, Missouri to US 40 bordering Lee's Summit. It will be important for Lee's Summit to coordinate roadway improvements beyond their own boundaries with adjacent communities to ensure safe and efficient travel up to and through Lee's Summit. Furthermore, recommended projects are limited to municipal, City of Lee's Summit, roadways. Many MoDOT highways and interchanges need improvement in support of 2025 conditions. If these state facilities are not improved, a greater traffic demand on municipal roads will be generated.

Based on the review of the traffic projections, safety and access consideration, the recommended 2025 projects are summarized in Table 5.

Table 5 – 2025 Recommended Projects

ID	Route	From	To	Description	Length
21	3rd Street	Pryor Road	Murray Road	Construct Additional Lanes of 5-Lane Undivided Arterial	0.46 mi
22	5th Street	Country Lane	Greenridge Dr.	Construct 2-Lane Residential Collector Gap	250 ft
23	Chipman Road	Todd George Parkway	Lyon Drive	Construct 2-Lane Residential Collector Gap	0.54 mi
24	Colbern Road	Blue Parkway	Douglas Road	Construct Additional 2-Lanes of 5-Lane Undivided Arterial	1.40 mi
25	Commerce Drive	Main Street	Tudor Road	Construct Commercial Collector Gap	775 ft
26	Douglas Road	Chipman Road	2nd Street	Urban Road Improvements	0.80 mi
27	Gateway Drive	Delta School Road	Existing Gateway Drive	Construct 2-Lane Residential Collector Gap	750 ft
28	Independence Avenue	Chipman Road	5th Street	Urban Collector Road Improvements	0.95 mi
29	Jefferson Street	Oldham Road	Persels Road	Urban Collector Road Improvements	0.30 mi
30	Longview Boulevard	Scherer Road	Longview Road	Construct 2-Lanes of Planned 4-Lane Divided Major Arterial	0.57 mi
31	Pryor Road	I-470	Colbern Road*	Urban Road Improvements	0.65 mi
32	Pryor Road	Longview Road	M-150 Hwy	Urban Road Improvements	3.51 mi
33	Scherer Road	Sampson Road	Jefferson Street	Interim Road Improvements	3.50 mi
34	Ward Road	Chipman Road	Blue Parkway (North)	Construct Additional 2-Lanes of 4-Lane Divided Arterial	0.77 mi

* - Includes improvements from the Lee's Summit City Limit to Colbern Road within Kansas City, MO.



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

Exhibit 12 - 2025 Model Traffic Conditions

4.6 Year 2040 Traffic Analysis

Longer range transportation needs were assessed by examining year 2040 socio-economic growth forecasts on the street and highway network. The long-term transportation outlook is extremely uncertain at this time due to exponential change in technology and industry impacting automobile design, use, freight movement, and mass transit. In addition, emerging environmental, social, and consumer and business trends will likely have substantial impacts on traditional trip generation and travel preference and patterns. This transportation evolution has already begun and may have negative and/or positive effect to existing, as well as future, road capacity, demand, and level of service. As examples, the ongoing development of autonomous and connected vehicles could reduce the capacity demand of roads with more controlled/efficient operations, vehicle and roadway spatial conservation, shared ridership and re-distributed commutes. Similarly, shifts to mass transit and non-motorized transportation options induced by denser mixed-land use and health stimulates would positively impact roadway capacity. However, roadway capacity could also diminish with additional demands from sprawling commutes (farther travels) and a renewed auto-centric mobility rooted in convenience and lowering comparable costs. Moreover, the measure for transportation improvements, level of service, may experience dynamic change in user expectation and delay acceptance. Considering the abundance of unanswered transportation questions related to the long-term transportation outlook; positive influences ignored, potentially negative influences likely less adverse than status quo, and the lack of engineering and planning resources to assess the future of transportation, the 2040 traffic analysis has been done with a conservative approach continuing historical practice. Additional traffic analysis and thoroughfare planning should be done as significant development activity approaches and reviewed again in depth when 2025 nears. The year 2040 is also the long-term horizon for the most recent Mid-America Regional Council regional transportation plan.

A few separate model scenarios were developed to anticipate traffic impacts considering varied possible future conditions that include 2040 conditions without Property Reserve Inc. (PRI) property development and with PRI North development. PRI North development is generally described as the property held generally between Woods Chapel Road and Colbern Road, east of I-470. PRI is a land holder for the Latter-day Saints Church. An analysis of PRI South development (located in south/southwest portion of the City) was not completed since there is no expectation this land will be developed in the next 25 years. Based on conversations with PRI, neither the north nor south property is likely to develop within the next 25 years, but PRI North has a higher probability to develop than PRI South due to its location and available supporting infrastructure. If PRI South moves towards development, an update to this plan would be appropriate or a separate master plan for its area and surrounding impact to south/southwestern Lee's Summit should be considered. Socio-economic and model formation references that represent the 2040 build can be found in Chapter 2 and Section 4.3.

4.6.1 2040 Existing plus Committed (E+C) Model Results

The 2040 Existing plus Committed (E+C) network was tested in order to provide a baseline of future conditions given completion of only the committed projects. Committed projects are noted in Section 4.5.1 and Table 4. It represents a worst case scenario with the assumption that no transportation projects, beyond those being designed or constructed in 2015, would be undertaken. This scenario does not include development of PRI North.

The results of this assignment indicate that there would be a large number of congested corridors throughout the City in the Year 2040. As anticipated, the level of traffic congestion is shown to increase between the year 2025 and 2040. In addition to the capacity issues illustrated on the state highway network in previous scenarios, several of the Lee's Summit jurisdictional roadways would be expected to operate at or over capacity. Many

other municipal roadways would show signs of near congested conditions. Other, previously unidentified, sections of interim road will also likely exhibit traffic volumes in 2040 that necessitate improvements for continued development considering the City's Unimproved Road Policy. The 2040 Existing plus Committed Model Results are illustrated on Exhibit 13.

4.6.2 2040 Existing plus Committed plus Planned Project (E+C+P) Model Results

This scenario provides an indication of potential traffic conditions given forecasted development to the year 2040, assuming that the PRI lands are not developed but that recommended roadway projects associated with the Thoroughfare Master Plan 2025 scenario and the supporting roadways within planned development of undeveloped property for 2040 socio-economic growth are constructed. These improvements to the roadway network and 2040 forecasted development make the 2040 environment. The Thoroughfare Master Plan conceptually identifies planned (or future) arterials and collectors that are necessary to support the long-term land use of the Comprehensive Plan. This Thoroughfare Master Plan is illustrated on Exhibit 16. Included in this scenario are existing committed projects and recommended projects identified in the 2025 scenario related to development, gap or capacity needs. Committed projects are noted in Section 4.5.1 and Table 4. The 2025 recommended projects are noted in Section 4.5.3 and Table 5. Several state highway capacity improvements discussed for 2025 and in consideration of 2040 E+C operations are also coded in this scenario. This scenario continues an opportunity to verify the need for planned projects and to identify additional projects (long-term planning) that may be needed to meet desired travel standards.

Some of the significant projects included in this scenario are:

- 6-Lane Interstate 470 plus Auxiliary Lanes
- Additional Through Lanes on US 50 Highway east of I-470
- Additional Through Lanes on M-291 Highway south of US 50 Highway
- 4/5-Lane Ward Road between Chipman Road and Blue Parkway
- 4/5-Lane Colbern Road between Blue Parkway and Douglas Road

These projects were coded into the travel demand model and trips associated with the Year 2040 growth forecasts were assigned to this network. This network provided a basis in which to evaluate future roadway capacity options.

The results shown on Exhibit 14 show how projected year 2040 traffic conditions would improve with the construction of those aforementioned projects above (noted State highway improvements, Table 4 and Table 5 listed improvements). The analysis confirms committed and 2025 recommended projects are needed. Added lanes on I-470, auxiliary lanes on US 50, widening of M-291 between I-470 and US 50 are critical too. The highway improvements also reduce diverted traffic on the municipal streets and frontage roads. Improvement of existing arterial routes and construction of new arterial routes provides travel alternatives further reducing traffic congestion. Remaining transportation improvement needs include the interchange areas at Chipman Road, 3rd Street, and M-291 (Hamblen). Improvement of these interchanges may be required prior to 2040 due to aging (maintenance) or (re)development. When major maintenance is done, capacity improvements to these interchanges should be pursued with long-term interests. If the assumed highway improvements are not completed, trip diversion to parallel arterial roads, such as Pryor Road, Chipman Road, Todd George Parkway, Colbern Road, Ward Road and Douglas Road will likely occur and expedite the need for capacity improvements upon those roadways that may or may not otherwise be necessary for adequate long-term level of service. A comparison of Exhibit 13 and Exhibit 14 provides some indication of this consequence.

Considering 2040 traffic volumes with committed projects, recommended 2025 projects and aforementioned state highway improvements, some other roadways maintained by the City of Lee's Summit may start to operate at a more congested level. The following City maintained roadways operate near congestion or worse in 2040 that were previously uncongested or congested to a lesser level of service extent in 2025:

- Bailey Road from Jefferson Street to Hamblen Road
- Chipman Road from Pryor Road to Blue Parkway
- Douglas Road from 2nd Street to Colbern Road
- Hamblen Road from US 50 to Bailey Road
- Lakewood Way from Woods Chapel Road to US 40
- Lee's Summit Road from Colbern Road to US 40
- Pryor Road from I-470 to O'Brien Road
- Ranson Road south of US 50 (MoDOT)

Bailey Road – The segment of Bailey Road from Jefferson Street to Hamblen Road will likely near congested conditions. However, through development related improvements, such as turn lanes and maintained access management, and improved intersection operations, the road should not meet or exceed its two-lane capacity. If the surrounding highway systems are not improved by 2040, Bailey Road may be at capacity from use as a diverted highway route.

Chipman Road – The segment of Chipman Road from Pryor Road to Blue Parkway is expected to operate at capacity by 2040. The roadway is currently a four-to-six-lane divided roadway. No right-of-way or potential for additional right-of-way exists for roadway expansion. Much of the congestion is attributed to the poor interchange operations at US 50. Improved US 50, interchange at Chipman Road and improved alternate routes (Blue Parkway and Pryor Road at I-470) should help alleviate congestion. Restricted access to/from Chipman Road via US 50 would mitigate some congestion too. If the assumed improvements to US 50 and I-470 are not implemented, the modeled traffic demand placed on this interchange may not actualize due to the highway capacity limitations.

Douglas Road – Segments of Douglas Road south of Colbern Road to 2nd Street are expected to operate at near congested levels. To some extent this issue is discussed in the 2025 analysis. The section of Douglas Road between Tudor Road and Chipman Road may be improved with turn lanes and access management as adjacent development occurs. Due to limited right-of-way along the corridor and built-out development conditions that extend north of Tudor Road and south of Chipman Road additional through lane capacity is not practical. Alternate routes between Colbern Road and Chipman Road should be considered to alleviate potential congestion as development occurs. A preferred alternate route is Main Street; however, Main Street would require significant improvements to serve those traffic demands. Tudor Road may also alleviate some congestion along Douglas Road south of Tudor Road when access to Ward Road provides an alternate route to I-470 (via Blue Parkway) and US 50 (via Chipman Road).

Hamblen Road – The segment of Hamblen Road between US 50 and Bailey Road is expected to operate over capacity by the year 2040. Improvement of the roadway segment to a four-lane section with turn lanes would be expected for adequate operations in the long-term plan.

Lakewood Way - Lakewood Way from Woods Chapel Road to US-40 may operate at capacity due to over capacity operations along I-470. If I-470 is congested, as illustrated in the 2040 model results, then traffic will likely use Lakewood Way as an alternate route. Additional lanes along Lakewood Way are not recommended based on year 2040 model results; rather I-470 should be improved.

Lee's Summit Road – Segments of Lee's Summit Road from Colbern Road to US 40 are expected to operate near congested levels by 2040, but not at or over capacity. This segment of roadway should be monitored as long-term development forecasts occur in Kansas City and Lee's Summit. The section of roadway in Lee's Summit will be constructed for expansion opportunities as needed for adequate operations.

Pryor Road – The portion of Pryor Road south of I-470 to O'Brien Road is modeled at capacity by 2040. There is limited right-of-way for expansion to six-lanes. Continued access management implementation, preservation of turn lanes, enhanced intersection operations and provisions for alternate routes with adequate capacity that serve southwest Lee's Summit are preferred strategies. Alternate routes include Longview Boulevard between I-470 and M-150, M-291 South, and Ward Road.

Ranson Road – The segment of Ranson Road between US 50 and M-150 is expected to operate at capacity by the year 2040. This roadway is partially located outside City limits and the portions within City limits are currently maintained by MoDOT and County. Potential improvement of the roadway to a four-lane section with turn lanes should be considered to address capacity concerns.

Those roadways shown operating near, at, or over capacity for the 2025 scenario in Section 4.5 which are not included among the E+C+P improvements continue to model similar level of service in the 2040 scenario.

- Colbern Road from Douglas Road to I-470
- Douglas Road from Victoria Street to Colbern Road and Chipman Road to Forest Avenue
- Independence Avenue/Town Centre Boulevard between Colbern Road and Strother Road

Although additional lanes were considered for the 2040 scenario (as noted above), several capacity needs are still expected on the MoDOT system. These include:

- ***I-470*** throughout Lee's Summit will likely experience significant congestion. The segment west of Colbern Road/M-291 is shown at capacity and the segment north of Colbern Road/M-291 is shown over capacity. This congestion is also shown to divert additional traffic to Independence Avenue/Ralph Powell and to Lakewood Way. An 8-Lane I-470 may be needed to accommodate long-term growth without significant changes to transportation. Modal shift, transit, HOV lanes, ITS, ramp metering, and other incremental operational enhancements should be considered along this section of interstate along with widening.
- ***US 50*** is forecasted to be at or over capacity between I-470 and M-291 north junction and near capacity on segments further to the east. A 6-Lane US 50 with auxiliary lanes should be considered throughout Lee's Summit.
- ***M-291*** between US 50 and I-470 has segments at capacity (north of Langsford Road) and segments near capacity (south of Langsford Road). M-291 south of US 50 also has segments at capacity (north of Hook Road) and segments near capacity (south of Hook road).
- ***M-150*** at the M-291 interchange and towards the east will be near capacity.

Similarly, arterials intersecting the state highway system likely need major improvements in coordination with MoDOT projects. These would address interchange capacity issues at Woods Chapel Road, Chipman Road, Todd George Parkway, 3rd Street, Douglas Road, View High Drive, etc.

In consideration of the City's Unimproved Road Policy, the following interim standard arterials would likely exhibit traffic volumes necessitating further improvement to urban standard not already proposed with committed, planned and recommended 2025 projects:

- Smart Road south of US 50
- Todd George Parkway between Colbern Road and Woods Chapel Road

Smart Road – Smart Road south of US 50 has a projected ADT in 2040 in excess of 10,000 vehicles. Much of the projected traffic is contingent on development activity from 2015 to 2040 upon the surrounding property south of US 50 and outside the City limits of Lee's Summit. Roadway improvements should be considered as development occurs or until congested conditions are experienced. Paved shoulders would improve safety and have a marginal operational benefit.

Todd George Parkway – Todd George Parkway from Strother Road to Colbern Road has an expected ADT of over 16,000 vehicles. North of Strother Road, the ADT falls to 10,000 vehicles. The increase in traffic is mostly associated with forecasted congestion on I-470. If improvements to I-470 are not implemented by 2040, Todd George Parkway will require widening to achieve desirable levels of service.

Any unimproved roadways listed in Section 4.4 should be considered for improvement to an interim standard or greater based on development needs. Construction of gaps in the roadway network should also be considered to improve the overall system performance.

A future interchange at M-291 and Hook Road is planned and may or may not be necessary absent development of the PRI South properties. This interchange should remain on the long-term improvement plan and certainly recommended if and when PRI South develops. Other surrounding property development may be incentivized with this interchange and would likely be needed to support the highest and best use of immediately adjacent land.

4.6.3 2040 Existing plus Committed plus Planned (E+C+P) Model Results Assuming PRI North Development

This Year 2040 scenario includes forecasted 2040 development plus potential activity associated with the development of PRI lands located between Colbern Road and Woods Chapel Road, east of I-470.

The results show similar conditions to those in 2040 without PRI except that a greater traffic demand is placed on Todd George Parkway, Strother Road, Woods Chapel Road, Colbern Road and Independence Ave/Town Centre Blvd that causes more congestion. However, there are no added roadways identified over capacity when compared to 2040 without PRI. A few roadways will likely experience near congested or congested conditions at capacity in this scenario that were not shown to the same extent in 2040 without PRI:

- Colbern Road west of Douglas Road
- Independence Avenue/Town Centre Boulevard between Colbern Road and Strother Road
- Pryor Road south of O'Brien Road to 3rd Street
- Strother Road between Independence Avenue and Todd George Parkway
- Todd George Parkway between Colbern Road and Woods Chapel Road

With exception of Todd George Parkway and Strother Road west of Todd George Parkway to Independence Avenue, none of these roadways would render recommendations for capacity widening to achieve adequate conditions. Todd George Parkway from Colbern Road to Woods Chapel Road and Strother Road west of Todd George Parkway to Independence Avenue should be expanded and upgraded to urban standards when the surrounding PRI property develops. Planned and recommended projects listed in Section 4.6.4 for 2040 without PRI North Development generally address 2040 travel needs with PRI North Development. The results of the Existing plus Committed plus Planned projects with PRI North are shown on Exhibit 15.

4.6.4 Recommended 2040 Projects

The results of the 2040 analyses shows that there are projected to be additional roadway needs beyond the committed, planned and recommended 2025 projects to address traffic congestion and in some cases, to provide streets constructed at a standard to meet the forecasted traffic volumes as the City approaches full build out. The most critical capacity needs were identified along the state highway system. If highway and interchange improvements are not completed, significant trip diversion will likely occur onto arterial and commercial roads unnecessarily causing congestion. Moreover, highway trips coming to Lee's Summit will be inhibited and trips leaving Lee's Summit will be significantly delayed. These highway improvements are listed in Section 4.6.2. Although the model illustrates some municipal roadways as beginning to operate at or near congested levels, it is important to consider the model is only a tool for future planning.

An analysis of 2040 with and without PRI North development was completed to consider the potential difference in transportation needs given the uncertain, but substantial impact the PRI properties may have in Lee's Summit. No study of PRI South was completed and special study of the PRI South area would be appropriate if activity were anticipated within a 10-25 year projection upon the property. However, the completed 2040 scenarios shared comparable, or similar, results among the municipal road impacts. Consequently, the following 2040 capacity, safety and economic based projects are recommended with and without PRI North development:

- All Committed, Planned and Recommended 2025 Projects.
- Any remaining unimproved collectors or interim standard arterials (e.g. Sampson Road, Hook Road, Scherer Road, and Todd George Parkway).
- Arterials intersecting highways should be improved in coordination with State Projects.
- ***Hamblen Road*** – Reconstruct the roadway between US 50 Highway and Bailey Road as a four/five-lane section.
- ***Main Street*** – Reconstruct the roadway between Chipman Road and Colbern Road with additional capacity to better serve north-south traffic parallel to Douglas Road, an alternate to Douglas Road as its capacity is limited, and support adjacent land development. Refer to Douglas Road evaluation comments and Main Street 2025 recommendations.

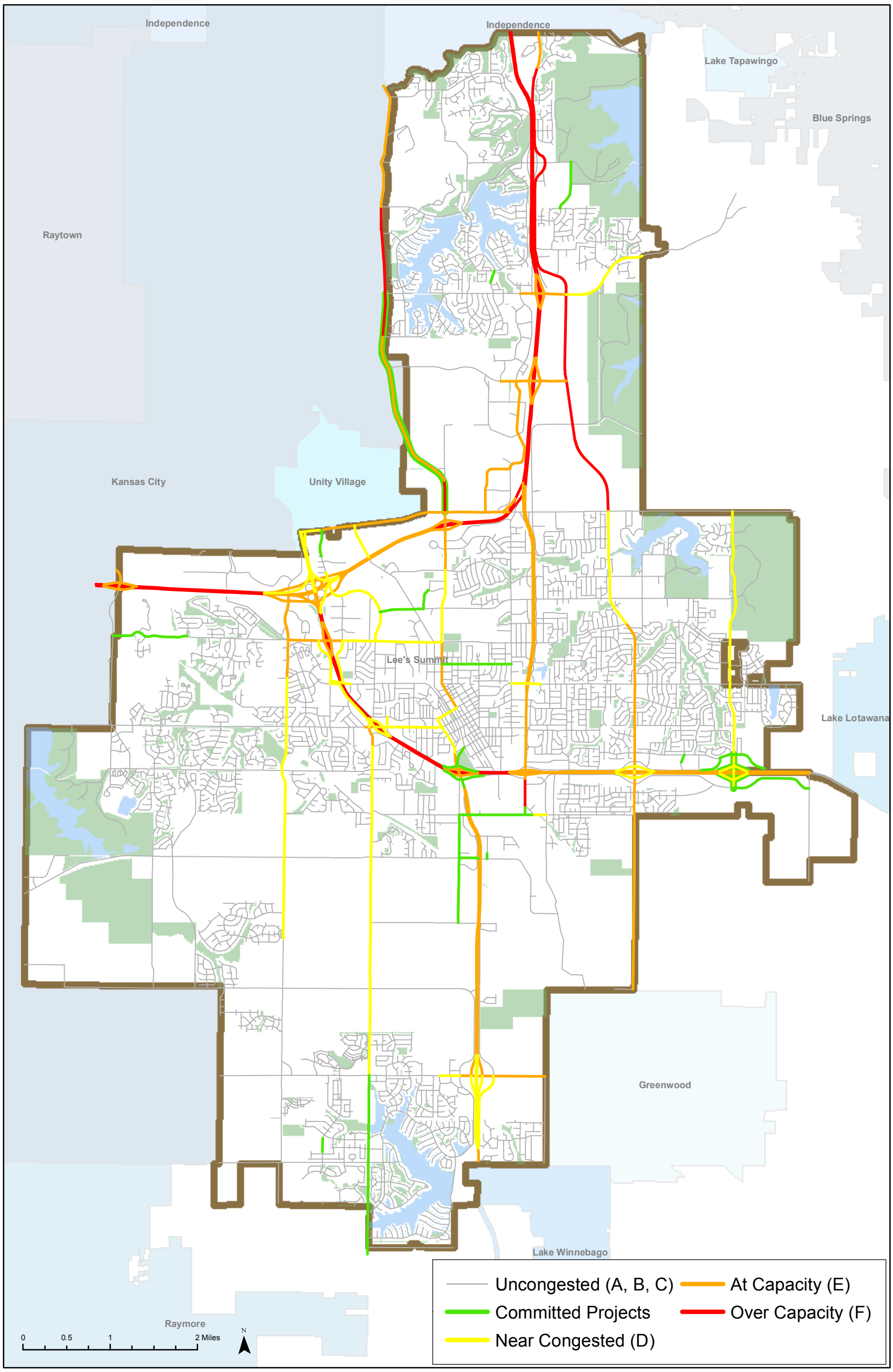
Project needs are only identified within the Lee's Summit city limits and jurisdictional control of the City. In reality, project needs extend beyond the state system and the city's boundaries into other jurisdictions. An example of this is Lee's Summit Road and its needed capacity improvements through Kansas City, Missouri to US 40. It will be important for Lee's Summit to coordinate roadway improvements beyond their own boundaries and controls with adjacent communities and authorities to ensure safe and efficient travel up to and through Lee's Summit.

As development continues to occur throughout the City, new collectors and arterials would improve operations of the roadway network. While these roadways may be tied to development, construction of new roadways by the City may encourage (re)development in these areas. New road examples include:

- ***Browning Road*** – Considering the redevelopment opportunity and access management needs along Hamblen Road south of US 50 and west of Hamblen Road, bound by the highway and railroad, the need for Browning Road west of Hamblen Road increases and should be considered for the long-term vitality of the area.
- ***Longview Boulevard*** – With proposed development activity and longer-term growth in the community, it is anticipated that Longview Boulevard will be built Longview Road to Scherer Road by 2025. Long-term planning for Longview Boulevard is to extend the roadway from Scherer Road to Hook Road, providing an additional north/south collector roadway and servicing anticipated development in the area. Horridge Road, within Kansas City, MO would provide an extension of Longview Boulevard to M-150 Highway.
- ***Hook Road Interchange –*** As traffic volumes continue to increase in the south quadrant of the City, an interchange at M-291 Highway and Hook Road may be warranted. With the addition of an interchange at Hook Road the outer road network should be reconstructed to provide improved intersection spacing. Jefferson Street should be extended from Stuart Road to Hook Road to improve access to the new interchange. Improvement may be deferred until PRI South develops

These few examples and other new roadways conceptually depicted on the Thoroughfare Master Plan, Exhibit 16, such as Windemere Drive/Frederick Drive Extension, Extension of Eagle View Drive/Stuart Road Pryor Road and Ward Road, Cheddington Drive Extension to M-291, Extension of Summit Hill Drive west of Pryor Road, Oldham Parkway Extension to Blackwell Road, Rice Road Alternate north of Colbern Road, etc. should be considered by 2040 (or at the very least right-of-way preservation) as funding opportunities, development proposals and priorities permit.

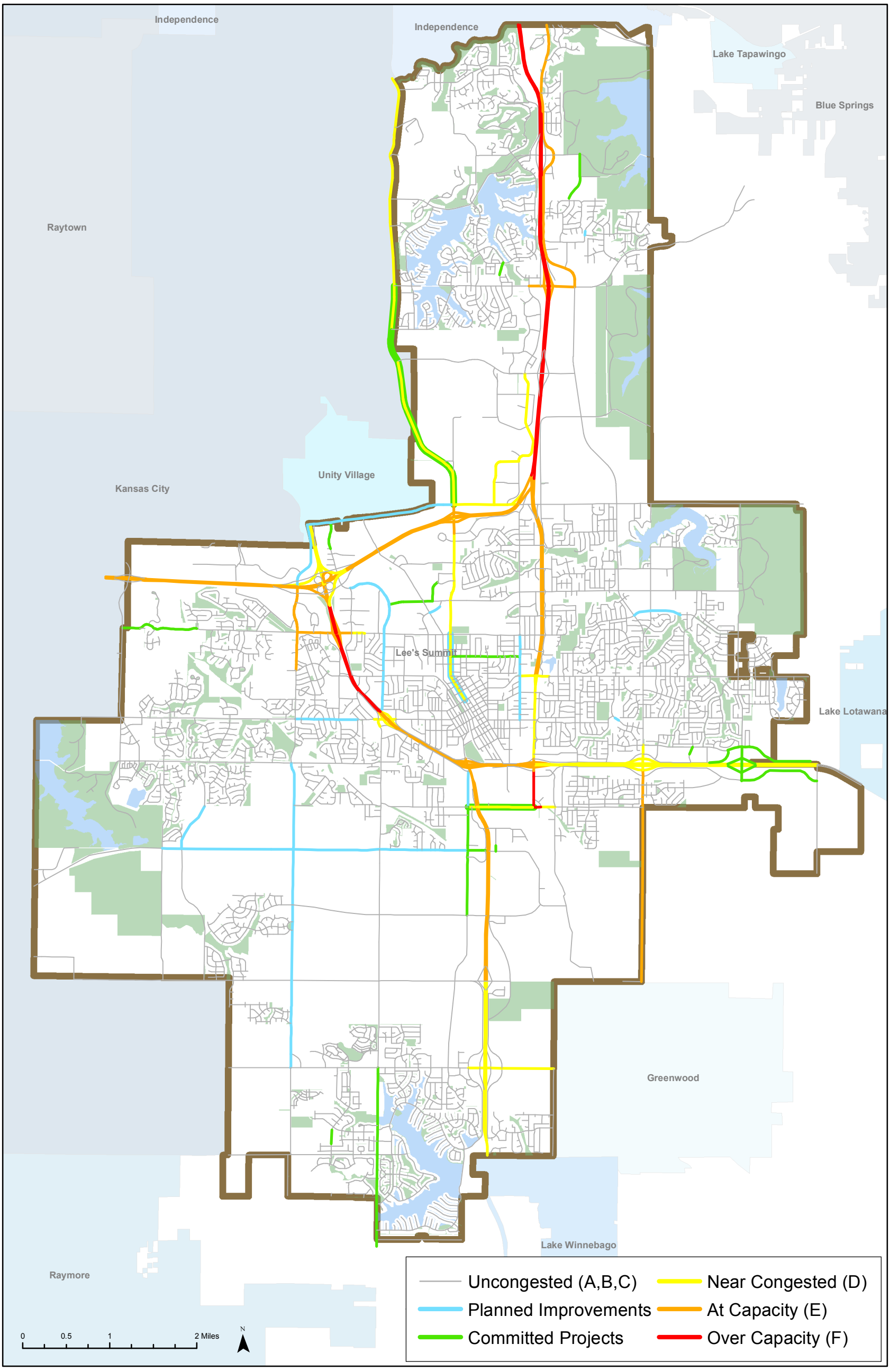
These recommendations assume 25 years of land development activity that will vary significantly. Consequently, timing and land use deviations from assumed development will alter recommendations for roadway improvement projects.



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

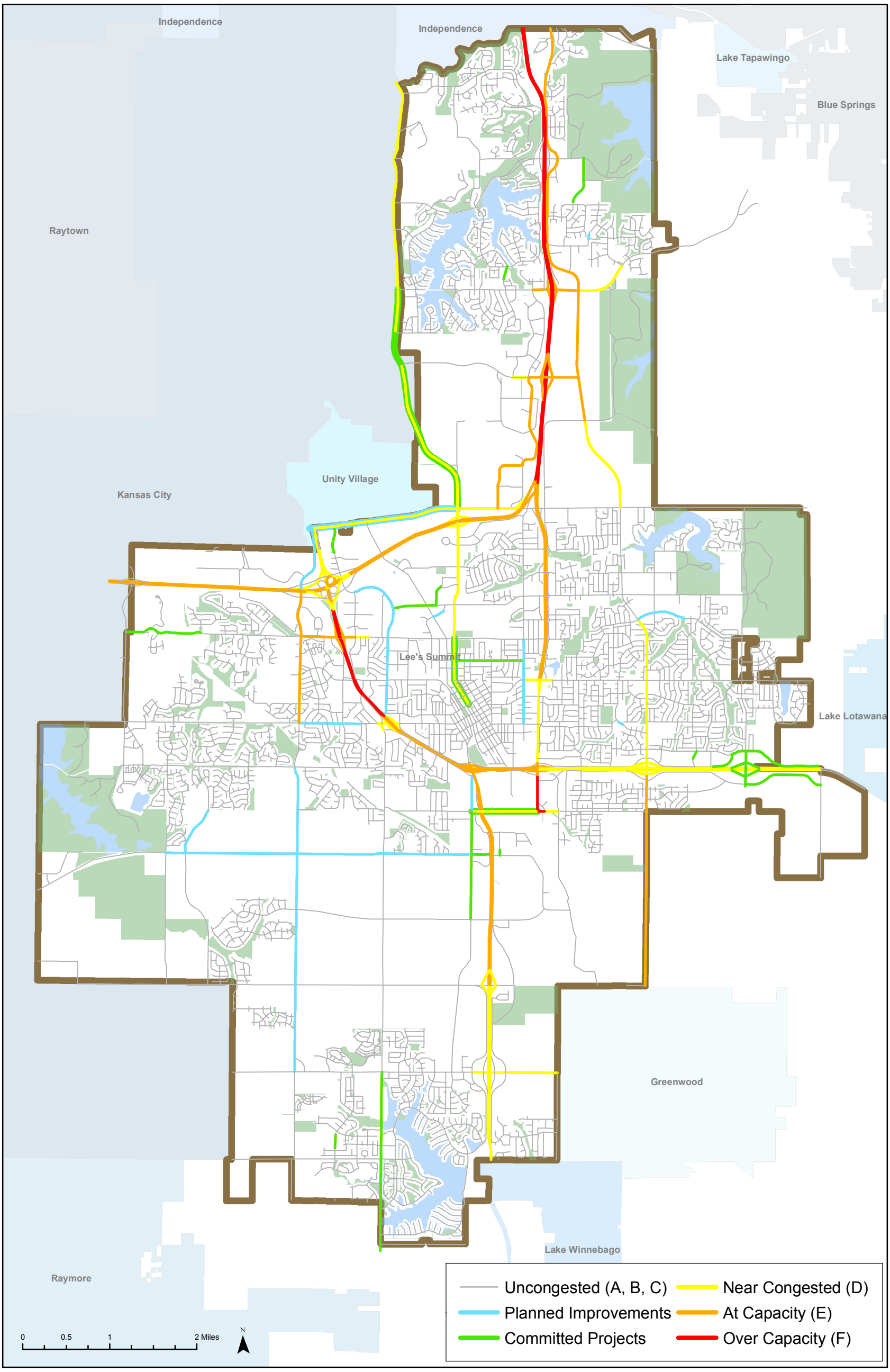
Exhibit 13 - 2040 E + C Model Traffic Conditions



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

Exhibit 14 - 2040 E + C + P Model Traffic Conditions



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

Exhibit 15 - 2040 E + C + P with PRI North Model Traffic Conditions

4.7 Transportation System Assessment Alternatives and Outlook

The development of a travel demand model is one way of identifying future improvements to the roadway network. The use of a model can illustrate capacity constraints on a system, reflecting improvements that may relieve congestion along the roadway network. In addition to reviewing operations of a network to determine improvements, safety, economic development and livability were also considered when developing a list of recommended projects.

Transportation safety projects mostly pertain to corridors designated unimproved (and possibly interim standard), where safety is directly related to the road condition, pavement width, presence of shoulders, traffic volume and travel speed served, functional classification and context of surrounding community. It is possible that some corridors share other safety concerns such as limited sight distance, but typically "spot" safety issues are addressed through local projects rather than thoroughfare planning. Higher levels of congestion can also contribute to less safe operations.

Roadway improvements may also be initiated for the potential economic development impact. These types of projects could include extending a road to an area that is currently not serviced, providing additional capacity (e.g. adding travel lanes), or building the policy driven context of a road required for development to occur (e.g. interim road standard). By making these improvements prior to development interest the City can better manage or incentivize growth and economic activity throughout the City.

Livability refers to improving the roadway network, or making connections, that improve the user experience by shortened trip distances and enhanced route accommodations. When considering livability the user is not only a vehicle driver, but also a transit rider, bicyclist or pedestrian. For example, there are segments of the collector network that are missing which results in a lack of connectivity. Some of these locations are 5th Street west of Todd George Parkway and Delta School Road east of Lakewood Way. Making the connection does not address a measurable capacity need; however, recognizing these gaps in the system provides connectivity for users between neighborhoods, parks, and in some cases provides a better connection to the arterials. Many other examples of livability improvements are local projects not found in thoroughfare planning such as paths, sidewalks, turn lanes, and paved shoulders along a roadway corridor. These are roadways that are operating at an acceptable level of service but could better serve all users and thus provide a more livable roadway network in concord with the City's adopted Livable Streets Policy.

The transportation system and automobile travel mode in particular is facing significant change with the development of autonomous and connected vehicles. This issue was discussed in the long-range transportation outlook, 2040 scenario, Section 4.6.

Chapter 5 – Thoroughfare Master Plan

5.1 Thoroughfare Master Plan

The Thoroughfare Master Plan is shown on Exhibit 16. The exhibit is based on the long-term land use of property in Lee's Summit described in the Comprehensive Plan, existing or 2015 conditions, as well as 2025 and 2040 projects described in Chapter 4. The Thoroughfare Master Plan provides an indication of the street and highway functional classification of existing and planned roadways. It should be noted that although project needs have been identified for MoDOT facilities, these projects have not been endorsed by MoDOT and will require their review.

5.2 Project Prioritization

A number of technical and non-technical factors are considered in developing project priorities. Technical factors include relief of traffic congestion, reduction of travel time and delay as discussed throughout the report. Non-technical factors include roadway design deficiencies related to travel safety, livability and economic development. An economic development impact can be a subjective opinion on how the project would be anticipated to impact commercial and service industry land uses, likely required roadway improvements in support of development and adequate transportation needs for development to occur at the highest and best use according to planned zoning. Economic development can also be encouraged on the basis of preferred "Market Target Areas" and associated study established by the City Council, Economic Development Council and staff. Livability impacts are also a subjective opinion regarding the extent of impacted travelers, improved access opportunities and efficiencies in the network. All projects to some extent will share multiple benefits regarding operations/capacity, safety, livability and economic activity. Table 6 identifies the 2025 and 2040 recommended projects with safety, operations, livability and economic activity benefit factors categorized similar to a "Consumer Reports" high, medium and low impact. Another objective factor that may influence prioritization involves project costs that can be related to project benefits. Table 6 also provides a cost indicator for each project. A compilation of many potential projects considered in this study, including recommended projects, is tabulated in the Appendix using the same format at Table 6. This information can be a useful resource to prioritize projects.

5.2.1 Safety Benefits

Transportation safety is paramount to transportation. projects mostly pertain to corridors designated unimproved (and possibly interim standard), where safety is directly related to the road condition, pavement width, presence of shoulders, traffic volume and travel speed served, functional classification and context of surrounding community. It is possible that some corridors share other safety concerns such as limited sight distance, but typically "spot" safety issues are addressed through local projects rather than thoroughfare planning. Higher levels of congestion can also contribute to less safe operations. All roadway improvements, especially those that integrate non-motorized transportation facilities and/or add capacity, will have some positive safety impact.

5.2.2 Operational/Travel Benefits

The travel benefits associated with each project were assessed based on the measure of traffic volume impacted, functional classification of roadway and degree of change to travel speed and capacity anticipated from each project. Generally, the more people impacted and greater the change in travel speed represents a greater benefit to traffic congestion along the route. The greater the change in operation represents the overall improvement in accessibility on the travel network.

5.2.3 Livability Benefits

Livability refers to improving the roadway network, or making connections, that improve the user experience by shortened trip distances and enhanced route accommodations. When considering livability the user is not only the driver but also likely a transit rider, bicyclist or pedestrian. For example, there are segments of the collector network that are missing which results in a lack of connectivity. Some of these locations are 5th Street west of Todd George Parkway and Delta School Road east of Lakewood Way. Making the connection does not address a measurable capacity need; however, recognizing these gaps in the system provides connectivity for users between neighborhoods, parks, and in some cases provides a better connection to the arterial network system. Many other examples of livability improvements are local projects such as paths, sidewalks, turn lanes, and paved shoulders along a roadway that is currently in the interim condition. These are roadways that are operating at an acceptable level of service but could better serve all users and thus provide a more livable roadway network in concord with the City's adopted Livable Streets Policy.

5.2.4 Economic Activity Benefits

Roadway improvements may also be initiated to impact potential economic development or re-development. These types of projects could include extending a road to an area that is currently not serviced, providing additional capacity (e.g. adding travel lanes), or building the policy driven context of a road required for development to occur (e.g. interim road standard). By making these improvements prior to development interest the City can better manage or incentivize growth and economic activity throughout the City. The City Council, Community Economic Development Council and staff have generated development "Market Target" areas for priority over the last couple years.

5.2.5 Estimates of Project Cost

To develop estimated costs for each identified project, it is necessary to conceptually scope the desired right-of-way cross section for each transportation improvement. Generally, two-lane or four-lane roadways would include turn lanes too and may or may not be median divided based on the functional classification, number of lanes, speed, adjacent land-uses and practical consideration of the City's Access Management Code. The City's sidewalk standards (contained in the Design and Construction Manual and Unified Development Ordinance), Greenway Plan and Bicycle Transportation Plan identify additional on and off-street facilities anticipated for non-motorized users. After determining the likely type of right-of-way section and transportation facilities, anticipated cost estimates for construction could be developed. Basic utility relocation and property acquisition expenses were incorporated. Necessary cost adjustments were applied for unique project considerations such as bridge construction, property displacement or major utility relocation subject to private easements. Other items that were included in the cost estimates as a percentage of construction cost were change orders, surveys, engineering fees, material testing, construction inspection, and project administration.

All project costs were based on 2015 construction dollars and assume full replacement of the existing roadways. Some of the 2040 forecasted projects include a reduction in cost if the project was partially built in previous years. Considerations were not made for maintenance or rehabilitation such as concrete patching, crack sealing, and asphalt overlays.

These estimates were used to develop a range of potential costs for each project to assist with project prioritization.

5.2.6 Implementation Steps

The Thoroughfare Master Plan indicates short- and long-range transportation improvement priorities. The projects identified should enable the City of Lee's Summit to provide a transportation system that keeps pace with growth. A number of activities can take place to fully implement the projects identified in the Thoroughfare Master Plan. These activities include:

- Reserving or purchasing right-of-way at locations where improvements are identified;
- Identifying funding opportunities used to help finance future roadway capital improvements;
- Further identifying and prioritizing projects within funding limits;
- Examine modifications to the comprehensive plan related to street classifications and land use modifications;
- Implement and update, as necessary, the Greenway Master Plan and Bicycle Transportation Plan to better reflect the Thoroughfare Master Plan;
- Utility providers should use the plan to identify locations where projects are anticipated;
- Update and maintain the travel demand model to reflect changes in city limits, land use, development and street network; and
- Use the plan in the consideration of development, transportation improvement needs, future right-of-way requirements and the overall project approval process.

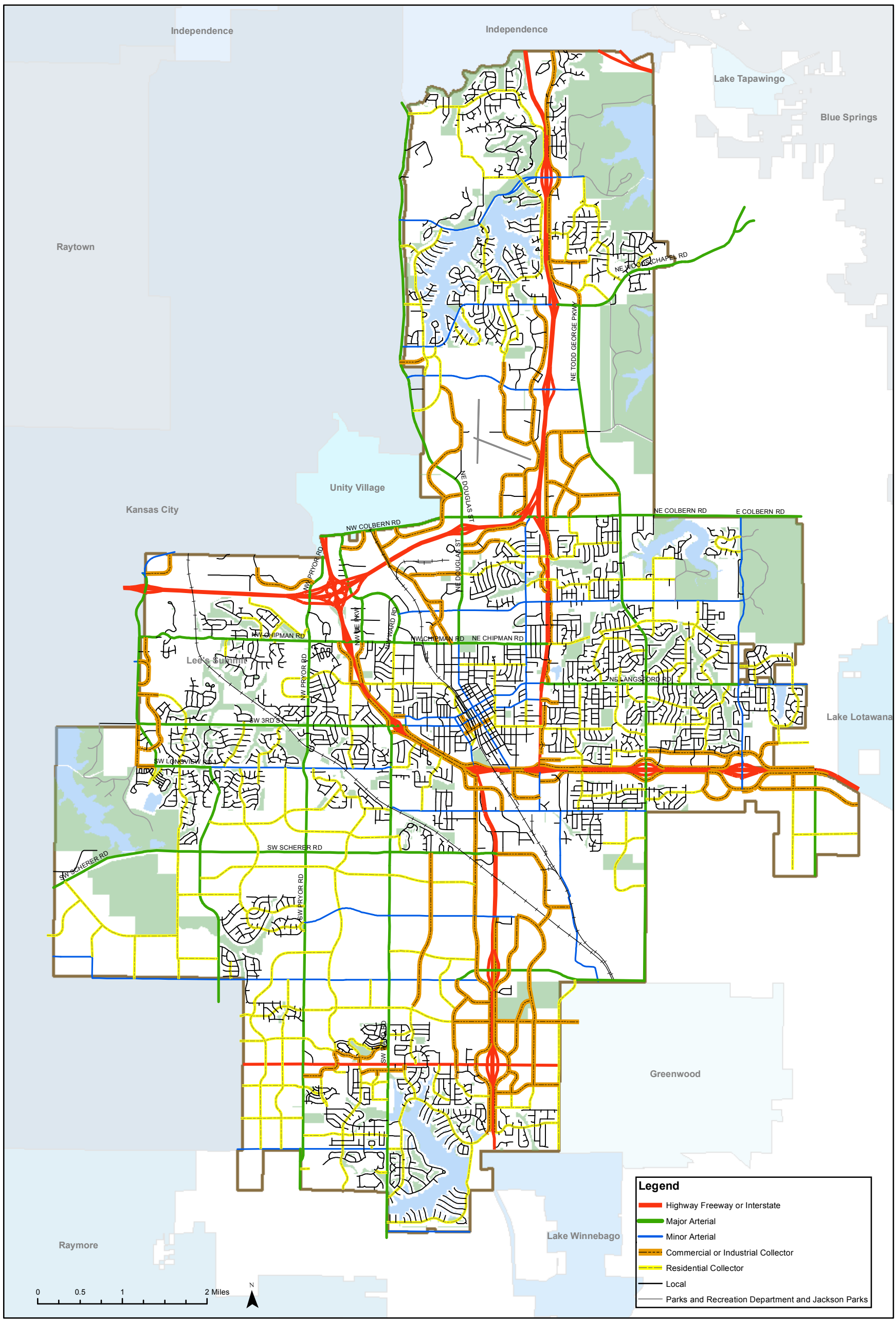
Table 6 –Recommended Project Benefits and Costs Summary

ID	Route	From	To	Description	Benefit				Cost	Plan Year
					S	O	L	E		
21	3rd Street	Pryor Road	Murray Road	Construct Additional Lanes of 5-Lane Undivided Arterial	◑	◑	●		$$	2025
22	5th Street	Country Lane	Greenridge Dr.	Construct 2-Lane Residential Collector Gap		◑	●		$	2025
23	Chipman Road	Todd George Parkway	Lyon Drive	Construct 2-Lane Residential Collector Gap		◑	●	○	$-$$	2025
24	Colbern Road	Blue Parkway	Douglas Road	Construct Additional 2-Lanes of 5-Lane Undivided Arterial	◑	◑	◑	●	$$$	2025
25	Commerce Drive	Main Street	Tudor Road	Construct Commercial Collector Gap		◑	○	●	$	2025
26	Douglas Road	Chipman Road	2nd Street	Urban Road Improvements	○	◑	●		$$	2025
27	Gateway Drive	Delta School Road	Gateway Drive	Construct 2-Lane Residential Collector Gap	○	◑	●		$	2025
28	Independence Avenue	Chipman Road	5th Street	Urban Collector Road Improvements	○	◑	●		$$	2025
29	Jefferson Street	Oldham Road	Persels Road	Urban Collector Road Improvements	○	◑	●	●	$$	2025
30	Longview Boulevard	Scherer Road	Longview Road	Construct 2-Lanes of Planned 4-Lane Divided Major Arterial		◑	●	◑	$$	2025
31	Pryor Road	I-470	Colbern Road*	Urban Road Improvements	●	◑	◑	◑	$$$	2025
32	Pryor Road	Longview Road	M-150 Hwy	Urban Road Improvements	○	●	●	◑	$$$$	2025
33	Scherer Road	Sampson Road	Jefferson Street	Interim Road Improvements	●		◑	○	$$$$	2025
34	Ward Road	Chipman Road	Blue Parkway	Construct Additional 2-Lanes of 4-Lane Divided Arterial		●	○	●	$$	2025
35	Hamblen Road	US 50 Hwy	Bailey Road	Additional Capacity and Access Management	○	●		○	$$$	2040
36	Main Street	Colbern Road	Chipman Road	Urban Road Improvements	●	◑	◑	●	$$$$	2040

S= Safety, O= Operation/Capacity, L=Livability, E=Economic, $<1M, $$=1M to 5M, $$$=5M to 10M, $$$$ >10M

For 2040 and 2040 with PRI North Scenarios, the following general recommendations were presented to address Safety, Operations, Livability and Economic Activity:

- **State Highway Improvements noted in Section 4.6.2**
- **Arterial Improvements in coordination with State Highway Interchange Improvements**
- **Remaining Gaps, Interim Standard and Unimproved Road Improvements**



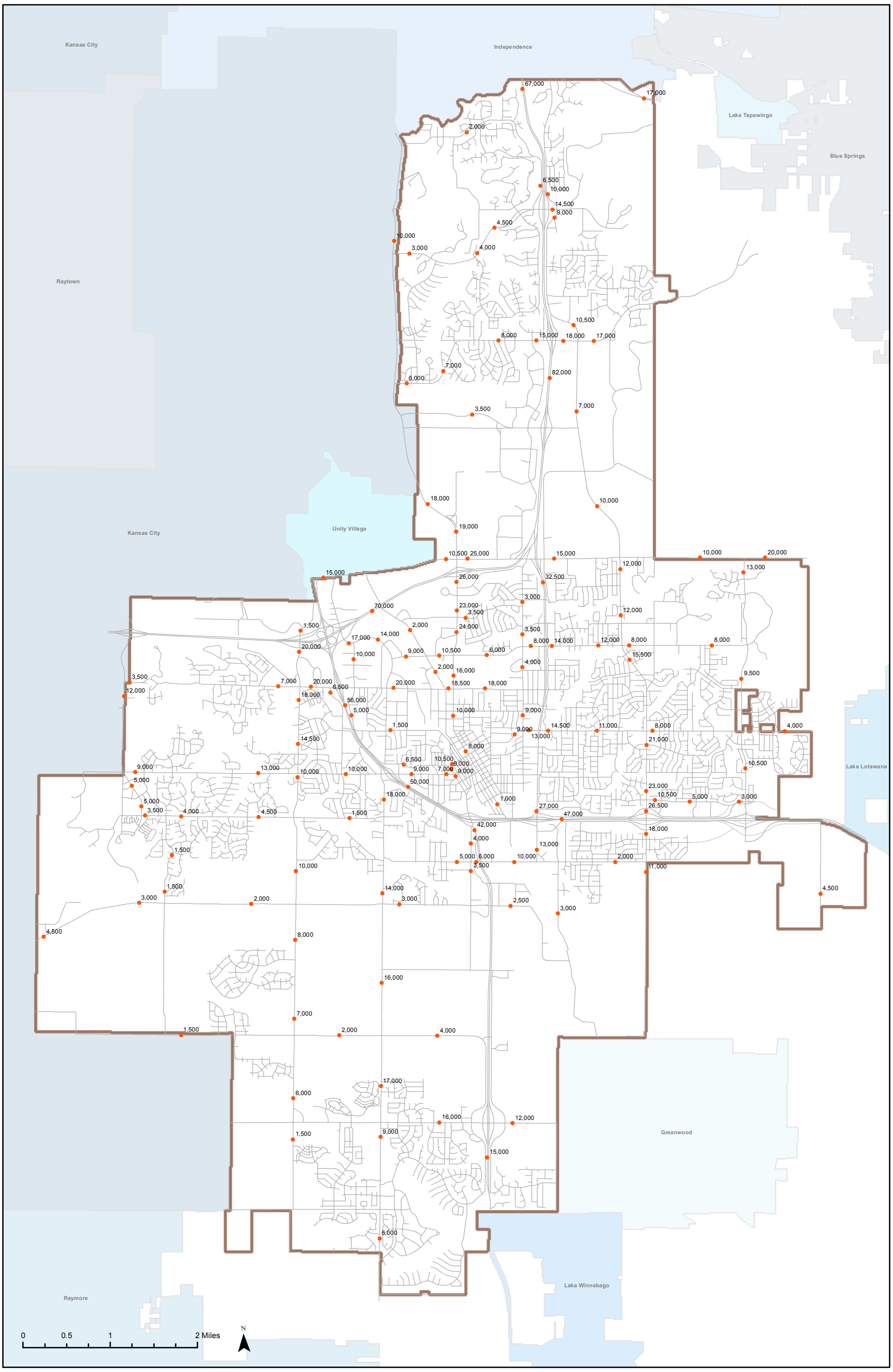
THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

Exhibit 16 - Thoroughfare Master Plan

Appendix

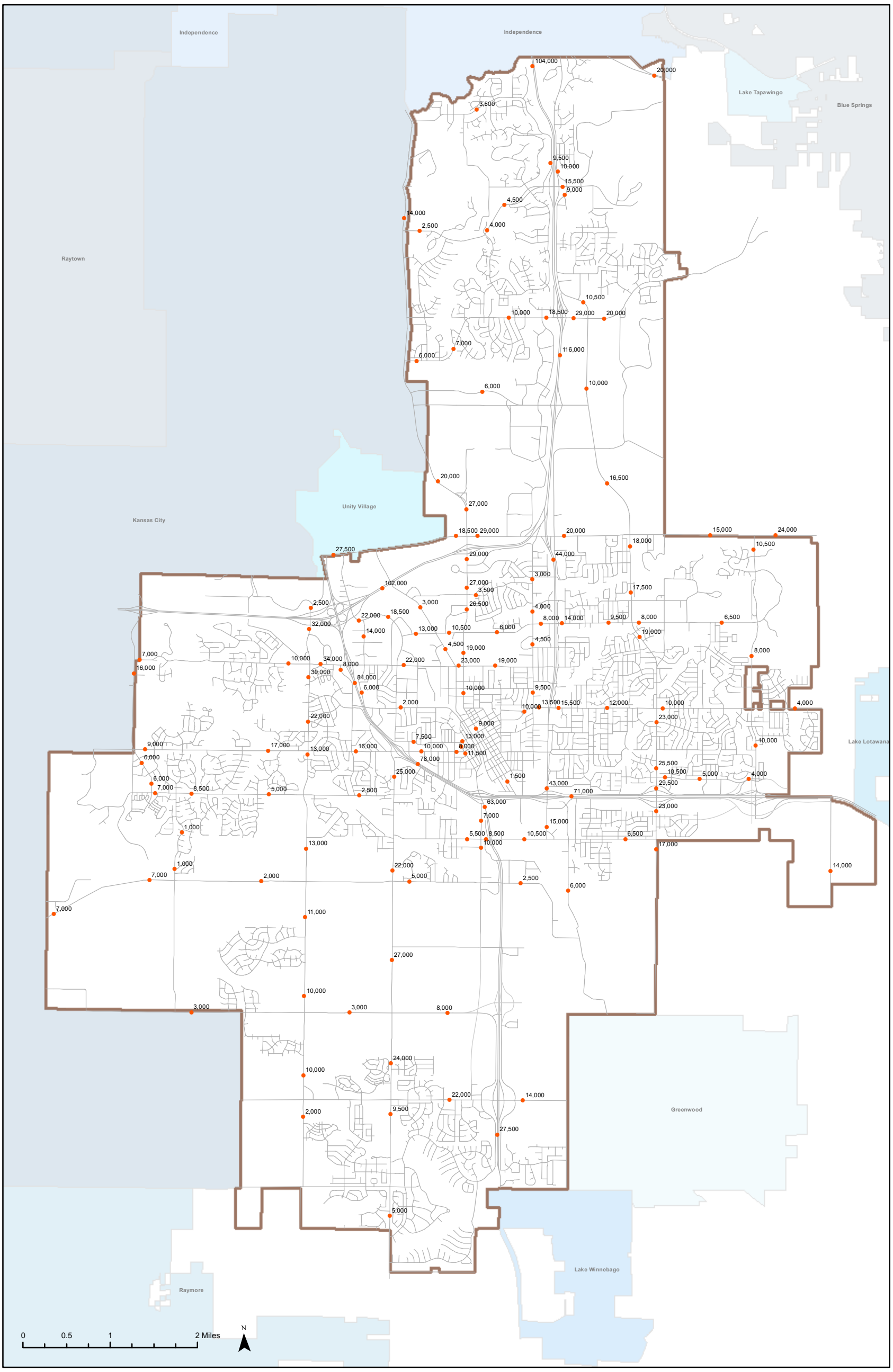
- Exhibit 17 - 2025 Model Volumes
- Exhibit 18 - 2040 Model Volumes
- Exhibit 19 - 2040 with PRI North Model Volumes
- Expanded Thoroughfare Project List
- 2006 Thoroughfare Master Plan Land Use Forecast (Comparison)



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

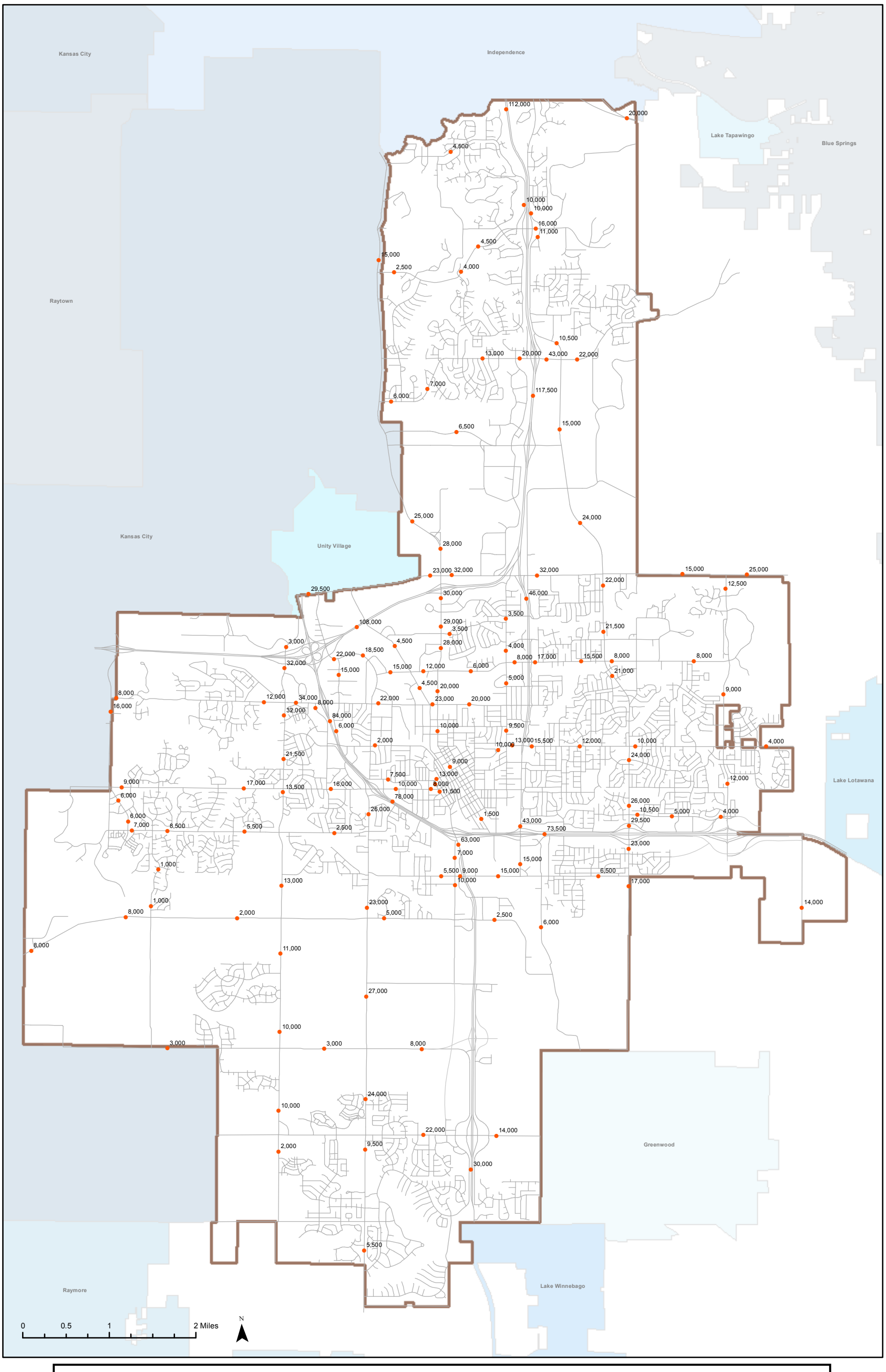
Exhibit 17 - Model 2025 Traffic Volumes



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

Exhibit 18 - Model 2040 Traffic Volumes



THOROUGHFARE MASTER PLAN

City of Lee's Summit, Missouri

Exhibit 19 - Model 2040 with PRI North Traffic Volumes

Thoroughfare/Major Projects

ID	Market Target	Route	From	To	Improvement Description	Benefit				Cost	Year	Notes
						Safety	Operation	Livability	Economic			
1	X	Bailey Road	M-219	Hamblen Road	New 2-Lane		●	●	●	$$$$	Committed	2016
2		Battery Drive	Blue Parkway	Shenandoah Dr	Construct gap		○	◑	○	$	Committed	2017
3	X	Blackwell Road and US-50 Interchange			Construct new interchange	●	●	◑	●	$$$$	Committed	2017
4	X	Colbern Road	South of Colbern Road	Colbern Road	Re-alignment		◑	○	●	$$	Committed	2015
5	X	Chipman Road	View High Road	Bent Tree Drive	Improve to 3-lane	●	◑	○	○	$$	Committed	2020
6	X	Decker Street	Thompson Dr	16th Street	Construct gap	○	◑	○	◑	$	Committed	2016
7		Independence Avenue	Woods Chapel Road	Dick Houser Drive	Construct gap		○	◑	○	$	Committed	2018
8		Jamestown Drive	Kenwood Drive	Bowlin Road	Construct gap		○	◑	○	$	Committed	2016
9	X	Jefferson Street	Scherer Road	Persels Road	Improve to 3-lane	◑	●	●	◑	$$	Committed	2017
10	X	Jefferson Street	Stuart Road	Scherer Road	Interim Road Standard	●	○	◑	○	$$	Committed	2017
11	X	Lee's Summit Road	Colbern Road	83rd Street	Improve to 3/5-lane	●	◑	◑	◑	$$$	Committed	2016
12	X	Lee's Summit Road	83rd Street	Gregory Boulevard	Improve to 3/5-lane	●	◑	◑	◑	$$$	Committed	2016
13	X	M-291 (South Junction) and US-50 Interchange			Construct new interchange	●	●	●	●	$$$$	Committed	2018
14		Orchard Street	Douglas Street	Independence	Reconstruct 2/3-lane	◑	○	●		$$	Committed	2016
15	X	Scherer Road	Jefferson Street	M-291	Construct gap		◑	◑	◑	$	Committed	2017
16	X	Sloan Street	Tudor Road	Victoria Drive	Construct gap		○	◑	○	$	Committed	2016
17		Stoney Creek Drive	44th Street	Whistle Drive	Construct gap		○	◑		$	Committed	2016
18	X	Strother Road	Lee's Summit Road	Ralph Powell Road	Re-alignment as 2-lane	●	◑	○	◑	$$	Committed	2015
19	X	Tudor Road	Douglas Street	Ward Road	Construct 4-lane		◑	◑	●	$$$	Committed	2017
20		Ward Road	M-150	South City Limit	Improve to 3-lane	◑		◑		$$	Committed	2017
21		3rd Street	Pryor Road	Murray Road	Improve to 5-lane	◑	◑	●		$$	2025	Traffic Demand
22		5th Street	Country Lane	Greenbridge Drive	Construct 2-lane		◑	●		$		Existing Gap
23		Chipman Road	Todd George Parkway	Lyon Drive	Construct 2-lane		◑	●	○	$ or $$		Planned Road
24	X	Colbern Road	Blue Parkway	Douglas Road	Improve to 4/5-lane	◑	◑	◑	●	$$$	2025	Traffic Demand
25	X	Commerce Drive	Main Street	Tudor Road	Construct 2/3-lane		◑	○	●	$		Planned Road
26	X	Douglas Street	Chipman Road	2nd Street	2/3-lane	○	◑	●		$$		Livability/Traffic
27		Gateway Drive	Delta School Road	Gateway Drive	Construct 2-lane	○	◑	●		$		Existing Gap
28	X	Independence Avenue	5th Street	Chipman Road	2-lane	○	◑	●		$$		Livability
29	X	Jefferson Street	Persels Road	Oldham Parkway	Reconstruct 2/3-lane	○	◑	●	●	$$		Economic/Traffic
30		Longview Boulevard	Longview Road	Scherer Road	Construct 2/3-lane		◑	●	◑	$$		Economic/Traffic
31	X	Pryor Road	I-470	Colbern Road	Improved Roadway	●	◑	◑	◑	$$$	2025	Economic/livability
32		Pryor Road	M-150	Longview Road	Urban Section/Widening	○	●	●	◑	$$$$	2025	Traffic Demand
33		Scherer Road	Sampson Road	Jefferson Street	Interim 2-lane	●		◑	○	$$$$		Safety
34	X	Ward Road	Chipman Road	Blue Parkway	Improve to 4-lane		●	○	●	$$	2025	Traffic/Economic
35	X	Hamblen Road	US-50	Bailey Road	Improve to 4/5-lane	○	●		○	$$$	2040	Traffic Demand
36	X	Main Street	Chipman Road	Colbern Road	Improve to 3-lane	●	◑	◑	●	$$$$	2040	Economic/Traffic
37	X	Ball Drive	Colbern Road	Todd George Parkway	Construct 2-lane		○		◑	$$	2025	Planned Road
38		Bowlin Road	Lakewood Way	Lake Jacomo	2/3 Lane Roadway	○	○	◑	◑	$$	2025	Economic/Traffic
39		Browning Road	Hamblen Road	Oldham Parkway	Construct gap	○	○	○	◑	$$		Planned Road
40		Cheddington Drive	Ascot Drive	M-291 Outer Road	Construct 2-lane		○	◑	○	$	N/A	Existing Gap
41		Chipman Road	M-291	Birchwood Dr	Construct 2-lane		○	●		$$$	2040	Planned Road
42		County Line Road	City Limit	Ward Road	Interim 2-lane	○		○	○	$$	N/A	Unimproved
43		Doc Henry	M-150	City Limit	Interim 2-lane	◑		◑	○	$$	N/A	Unimproved
44		Gateway Drive/Jamestown Drive	Kenwood Drive	Bowlin Road	Construct 2-lane		◑	●	○	$	2040	Planned Road
45		Hook Road	W. City Limit	M-291	Urban Section/Widening	○	◑	○	◑	$$$	>2040	Long-Term Traffic
46	X	Hook Road Interchange at M-291			New Interchange	◑	◑	○	●	$$$$	>2040	Long-Term Traffic
47	X	Independence Avenue	Newport Drive	Strother Road	Construct 2-lane		◑	●	○	$$		Planned Road
48		Langsford Road	Blackwell Road	City Limit	Urban Section/3-Lane Improvement	○		◑		$$		Livability
49	X	Lee's Summit Road	Colbern Road	City Limit	Improve to 5-lane		◑		◑	$$	>2040	Long-Term Traffic
50		Lido Drive	Raintree Drive	Stacey Drive	Construct 2-lane		○	●		$		Existing Gap

51		Longview Boulevard	Scherer Road	Hook Road	Construct 2/3-lane		○	◑	●	$$	2040	Long-Term Development
52		Longview Boulevard	Scherer Road	Hook Road	Improve to 5-lane		○	○	○	$$$$	>2040	Long-Term Traffic
53	X	Main Street	Chipman Road	Colbern Road	Interim 2-lane	◑	○	◑	○	$$		Unimproved
54		N/S connection west of M-291	Hook Road	Scherer Road				◑	●	$$$	>2040	Planned Road
55	X	NE quad M-291/M-150	M-150	Stuart Road	Interim 2-lane	○	○	◑	●	$$$$	>2040	w/ Development
56	X	Oldham/New Rd	M-291	Bailey	New Commercial Collector		○	○	●	$$		Planned Road
57		Pryor Road	County Line	Sout City Limit	Interim 2-lane			◑	○	$		Unimproved
58		Pryor Road	Napa Valley Dr	County Line Road	Interim 2-lane			◑	◑	$		Unimproved
59	X	Ranson Road	US-50	Bailey Road	Urban Section/Widening	○	●	○	○	$$$	2025	Traffic
60		Ranson Road	Bailey Road	S. City Limit	Interim 2-lane	◑	○	◑	◑	$$$		Unimproved
61		Ranson Road	Bailey Road	S. City Limit	Interim to Urban	○		○	◑	$$$	>2040	Traffic
62	X	Rice Rd/Langsford Rd			Re-Alignment/New Construction	●	●	○	○	$$$		Traffic/Safety
63		Sampson Road	Hook Road	Scherer Road	Interim 2-lane	◑		○	○	$$		Unimproved
64		Scherer Road	Sampson Road	Jefferson Street	Interim 2-lane	●	○	◑	◑	$$$$		Safety
65		Scherer Road	Sampson Road	M-291	Urban Section/Widening	○	◑	◑	◑	$$$$	>2040	Long-Term Traffic
66	X	SE quad M-291/M-150					○	○	●	$$	>2040	w/ Development
67		Smart Road	Oldham Parkway	South City Limit	Urban Section/Widening	○	◑	◑	○	$$$	2040	Long-Term Traffic
68		Stoney Creek Drive	Whistle Drive	Georgetown Drive	Construct 2-lane		◑	●		$		Existing Gap
69	X	Strother Road	Lee's Summit Road	Hagan Road	Urban Section/Widening		○	◑	◑	$$$	>2040	Long-Term Traffic
70		Stuart Road	Ward Road	M-291	Interim 2-lane	◑		◑		$$		Unimproved
71		Todd George Parkway	Colbern Road	Woods chapel Road	Urban Section/Widening		●	◑	●	$$$	>2040	Long-Term Traffic
72		Todd George Road	Scruggs Road	Peters Drive	Interim 2-lane	◑		◑	○	$$		Unimproved
73		Todd George Road	Scruggs Road	Tudor Road/County Park Road	Interim 2-lane	◑		◑	○	$$		Unimproved
74		Tudor Road	Todd George Parkway	County Park Road	Interim 2-lane	◑		◑	○	$$		Unimproved
75	X	Windsor Drive	Mulberry	Deerbrook	2-lane		○	○	◑	$$		Existing Gap
76	X	US-50	3rd Street Interchange		Capacity Reconstruction	◑	◑	●	○	$$$$	2025	MoDOT
77	X	US-50	M-291 North Interchange		Capacity Reconstruction	●	●	●	◑	$$$$	2025	MoDOT
78	X	I-470	W. City Limit	N. City Limit	Improve 8-lane	◑	●		◑	$$$$	2040	MoDOT
79	X	US-50	I-470	E. City Limit	Improve 6-lane	◑	●		●	$$$$	2040	MoDOT
80	X	US-50	Chipman Road Interchange		Capacity Reconstruction	◑	◑	●	○	$$$$	2025	MoDOT
81		Ranson Road	Bailey Road	S. City Limit	Improve 4-lane		○	◑	○	$$$$	2025	MoDOT
82	X	M-291 N	US-50	I-470	Improve 6-lane	○	◑	●	◑	$$$$	2040	MoDOT
83	X	M-291 S	M-150	S. City Limit	Improve 4-lane	○	◑		○	$$$$	2040	MoDOT
84		Lee's Summit Road	Gregory Road	N. of Anderson	Improve 4-lane	●	○	●	○	$$$$	2025	Kansas City, MO
85	X	3rd Street	Downtown	M-291	2/3-lane	○	○	●	◑	$$		Livability
86	X	3rd Street	US-50	Downtown	2/3-lane	○	○	●	◑	$$		Livability
87	X	Blue Parkway	I-470	South of Colbern Road	Reconstruct 4-lane Urban Section	○		◑	○	$$		Economic
88	X	Douglas Street	Downtown	Blue Pkwy	2-lane	○		◑		$$		Livability
91		Cheddington	M-150	Hook	Construct gap		○	◑	○	$		Development

$ is < $1M, $$ is $1M to $5M, $$$ is $5M to $10M, $$$$ is > $10M

Comparison of 2006 and 2015 TMP Forecasts

Values from 2006 TMP

Land Use Scenario	Single Family Units	Multi Family Units	Commercial Square Feet	Office Square Feet	Industrial Square Feet
Year 2005	26,268	6,018	7,290,879	1,420,060	8,318,424
Year 2015	30,913	7,702	12,298,189	1,566,260	8,690,253
Year 2030 (no PRI Developed)	33,369	7,993	12,768,052	2,066,260	9,190,253
Year 2030 plus PRI Developed North	33,652	9,239	13,608,389	4,264,624	9,190,253
Year 2030 plus PRI Developed North and South	38,276	13,829	17,640,973	5,679,300	9,190,253

Values from 2015 TMP

Table 1 – Summary of Land Use Forecasts (City of Lee's Summit)

Land Use Scenario	Single Family Units	Multi Family Units	Commercial Square Feet	Office Square Feet	Industrial Square Feet
Year 2014	30,544	7,116	6,531,887	1,962,446	6,824,603
Year 2025	32,707	8,488	11,991,017	3,805,397	7,036,788
Year 2040 (no PRI Developed)	34,585	10,601	16,614,699	5,965,565	10,661,382
Year 2040 (PRI Developed)	34,585	10,647	18,422,298	7,619,354	10,661,382