

July 20, 2021

SEVERANCE



TRANSPORTATION MASTERPLAN



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A special thank you to everyone who participated in the planning process for the Severance Transportation Plan. This Plan was made possible by the contributions and insights of the residents, business persons, property owners, and representatives from various groups and organizations.

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EXECUTIVE SUMMARY

The Town of Severance was incorporated in 1920, and today is a community of approximately 9,000 residents. It is located eight miles east of Fort Collins centered on the Weld County Road (WCR) 74 and WCR 23 intersection, just northeast of Windsor.

As Severance continues to grow, it will need to ensure that future growth areas and transportation improvements accommodate alternative modes of transportation. Approaching transportation planning from a wholistic perspective involves consideration of multimodal access for automobiles, bicycles, pedestrians and transit to guarantee that all modes of travel may be accommodated. Walking and biking are key elements of a healthy community and foster a high quality of life. Severance already has a good foundation of connectivity with neighborhood trails and sidewalks as well as the Great Western Trail. As the Town grows it should emphasize the incorporation of bike and pedestrian-oriented design into transportation improvements to strengthen these existing connections and provide future residents with expanded transportation options. The prioritization of all modes of travel will result in a community that is safe and well-connected for those traveling by automobiles, bicycle, or on foot.

This Transportation Master Plan contains a multimodal network plan that is intended to accommodate projected growth through 2040, and it includes a list of projects that would be necessary to realize this plan. Right-of-way requirements to accommodate build-out of the community are also identified. This plan contains guidelines to assist staff and policy makers in reviewing development proposals and implementing transportation improvements. It is intended that this plan be flexible enough to accommodate future revisions and adjustments as conditions dictate.

This plan included building on previous planning efforts, transportation goals and objectives, analysis of existing conditions, forecasting growth, and identifying a long range plan. The long range plan included the following:

- Roadway plan
- Functional classification
- Roadway cross sections
- Street standards and access control
- Deceleration lanes and turning lanes
- Street markings
- Traffic signals

- Issue areas
- Pedestrian and bike network
- Transit opportunities
- Transportation demand management

The plans for each mode of transportation should not be considered a static document but should be reviewed and updated as conditions and basic assumptions change, such as the adoption of a new Comprehensive Plan, changes in forecasted growth, and different goals and objectives expressed by residents and the Town Board.

Identification of projects, plan implementation and recommendations are provided in the last section of this plan. The following list provides a summary of actions the Town of Severance should consider taking to ensure that the needed transportation improvements are funded:

- Begin to plan and budget for completion of the improvements that have been identified for the short term.
- Require traffic impact studies from all proposed developments so that the requirements for internal roadways and impacts to the surrounding roadway system can be evaluated. For estimating background traffic volumes, a 5% annual growth rate should be used for through lanes on arterial roads. If a proposed development would impact state highways or county roads, require a referral to the Colorado Department of Transportation (CDOT) or Weld County for development review.
- Work with CDOT, North Front Range Metropolitan Planning Organization (NFRMPO), and Weld County to widen E. Harmony Road to a four-lane facility as traffic volumes grow and warrant a four-lane facility through the area.
- Work with CDOT to implement the proposed projects along the state highways traversing through Severance's Growth Management Area (GMA), including safety assessments, speed limit analysis studies, and other intersection improvements.
- Improve arterial intersections with turn lanes, traffic signals or roundabouts as traffic volumes grow and warrant improvements.
- Update the transportation impact fee program on a regular basis allows developer contributions for major road improvements to be pooled so that road improvements can be implemented on a community-wide basis.
- Continue to participate in the North Front Range MPO regional transportation planning process and other regional planning initiatives to ensure the consideration of Severance's vision for regional roadways, including the completion of a fully connected WCR 27.
- Adopt City of Greeley and CDOT's State Highway Access Code guidelines as part of the adoption of the Severance Transportation Plan.

- Continue to monitor traffic volumes, safety concerns, and land use development to assess speed limits and conditions for recommended traffic signals.
- Prepare and update street design standards that include geometric design information by street classification that is tied to design and posted speed limits.

INTRODUCTION

PLAN OVERVIEW AND USE OF PLAN

As the Town of Severance continues to grow, it will need to ensure that future growth areas and transportation improvements accommodate alternative modes of transportation.

Approaching transportation planning from a wholistic perspective involves consideration of multimodal access for automobiles, bicycles, pedestrians and transit to guarantee that all modes of travel may be accommodated. Walking and biking are key elements of a healthy community and foster a high quality of life. Severance already has a good foundation of connectivity with neighborhood trails and sidewalks as well as the Great Western Trail. As the Town grows it should emphasize the incorporation of bike and pedestrian-oriented design into transportation improvements to strengthen these existing connections and provide future residents with expanded transportation options. The prioritization of all modes of travel will result in a community that is safe and well-connected for those traveling by automobiles, bicycle, or on foot.

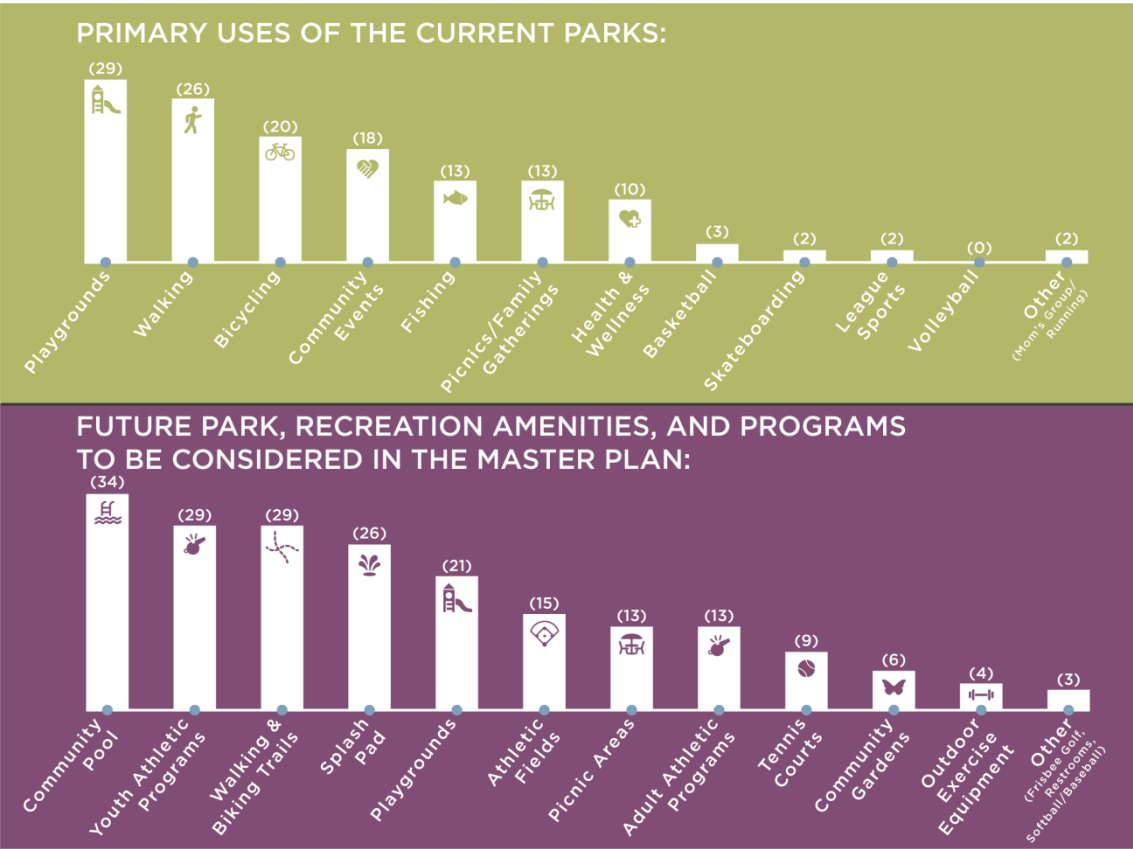
This Transportation Plan contains a multimodal network plan that is intended to accommodate projected growth through 2040, and it includes a list of projects that would be necessary to realize this plan. Right-of-way requirements to accommodate build-out of the community are also identified. This plan contains guidelines to assist staff and policy makers in reviewing development proposals and implementing transportation improvements. It is intended that this plan be flexible enough to accommodate future revisions and adjustments as conditions dictate.

BUILDING ON PREVIOUS PLANNING EFFORTS

In 2015, the Town adopted its first long range transportation plan in anticipation of continued growth. This 2021 Transportation Plan is an update of the 2015 plan and builds upon many of the original plan's recommendations to provide community leaders with a framework for prioritizing multi-modal transportation improvements.

The Town's 2017 *Parks Master Plan* also helped inform this Transportation Plan. The 2017 plan identified several opportunities for neighborhood bicycle improvements and sidewalks as well as the location for key connectivity improvements adjacent to community amenities, such as parks and the Great Western Trail. Community surveying conducted as part of the Parks Plan community engagement indicated a strong community desire for pedestrian and bicycle connectivity in future planning efforts. Many residents indicated that the development of new sidewalks and trails would be an important community asset to support the health and wellness of community residents.

A survey of the use of existing parks found that walking and biking were resident’s second and third most common use, respectively. When asked to list their preferred future park and recreation amenities and programs, “Walking and Biking Trails” was the second most popular response. This initial feedback of the Parks Master Plan demonstrated that pedestrian and bicycle connectivity would need to be a significant part of future Town planning efforts.



APPROACH

The purpose of the project is to create a new Transportation Plan to incorporate the substantial growth that has occurred since its creation and work to create a plan to handle the projected growth most efficiently. The previous Transportation Plan was prepared in 2015 by Felsburg, Holt and Ullevig.

The goal of the project is to develop a community supported plan that provides guidance for future development and redevelopment of the community’s transportation network as well as attempt to find solutions to some of the existing issues within the network. The Transportation Plan will guide the Town’s policy development, delivery of services, prioritize demands and opportunities, and generate a strategic action plan for the Town to be updated every five years to seven years.

The Transportation Plan will support expansion opportunities for roadway, transit, and other cutting-edge transportation opportunities.

Pedestrian and bicycle connectivity are a vital component of any community. The existing trails and bicycle routes play a significant role in the Town of Severance. These assets support parks and open spaces and provide residents with local recreation opportunities and safe pedestrian and bicycle travel options for getting around the community. By providing a comprehensive, connected system of bicycle and pedestrian facilities to be constructed over time as needs arise and as development occurs, this Transportation Plan will serve as a tool to:

- Identify the goals and priorities of residents and community leaders to determine the future direction of pedestrian and bicycle connectivity
- Provide direction on capital improvements
- Reinforce the goals of the Comprehensive Plan and the Parks Master Plan
- Support economic development and public health

At the completion of this plan, the Public/Planning process will have included the following steps:

- Meetings with Town Staff, Design Advisor Committee, the Planning Commission, and Town Board to determine the vision, goals and desired outcomes.
- Public Participation and Input: Conducted community and neighborhood outreach meetings to determine current and future wants and needs.
- Meetings with stakeholders/partners, such as the fire district, library district, school district and other key groups, to receive input on the transportation network.
- Conducted a survey through the Town's social media outreach software(s).

A summary of the verbal and written comments is included in **Appendix A**.

STUDY AREA

The Severance Comprehensive Plan (2020) defines a Growth Management Area (GMA), which was amended in 2020. The updated 2020 GMA boundaries serve as the study area boundaries for this plan. The GMA boundaries can be seen on Figure 1, which in general is defined as an area with WCR 90 to the north, State Highway (SH) 392 to the south, WCR 31 to the east, and WCR 13 to the west and excludes portions within Windsor.

RELATIONSHIP TO OTHER PLANS AND STUDIES

This 2020 Severance Transportation Plan was prepared in response to the recent development of the Town's *2020 Comprehensive Plan* and includes references to other plans and planning efforts. The two plans are consistent, although the Transportation Plan provides additional details specific to the transportation system.

In addition to the Comprehensive Plan, there are a number of recent and/or ongoing studies that deserve mention in relation to the Transportation Plan:

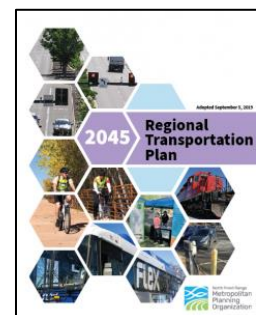
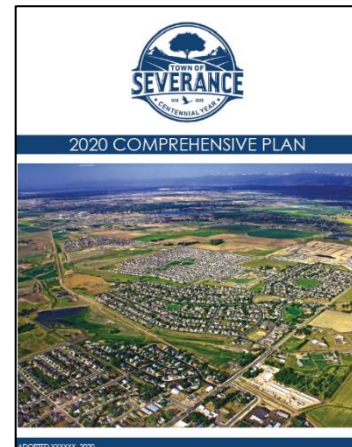
- North Front Range TPR's 2045 Regional Transportation Plan
- Weld County 2045 Transportation Plan

Roadways and other transportation infrastructure in and around Severance are funded, constructed, and maintained by several different transportation agencies, such as the Colorado Department of Transportation (CDOT), North Front Range Metropolitan Planning Organization (NFRMPO), Weld County, and surrounding cities and towns. As such, the Severance transportation system is affected by the plans of these outside agencies, which should be monitored on a continuing basis.

NORTH FRONT RANGE TPR'S 2045 REGIONAL TRANSPORTATION PLAN (2019)

The *2045 Regional Transportation Plan* (RTP) provides a long-range vision for the North Front Range regional transportation system and guides the implementation of multimodal transportation improvements, policies, and programs in the region. The North Front Range Transportation and Air Quality Planning Council (NFRT&AQPC), also known as the NFRMPO, is responsible for long range regional transportation planning. The NFRMPO has undertaken this 2045 RTP to extend the planning horizon for the region and to ensure FAST Act compliance.

The NFRMPO region has two air quality maintenance areas for carbon monoxide (CO): Fort Collins and Greeley. The entire NFRMPO region is also included in the nine county Denver-North Front Range 8-Hour Ozone Nonattainment area. Due to this air quality Nonattainment status, the NFRMPO is required to update its long-range transportation plan every four years.

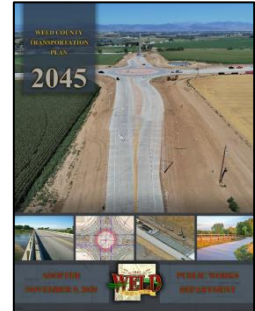


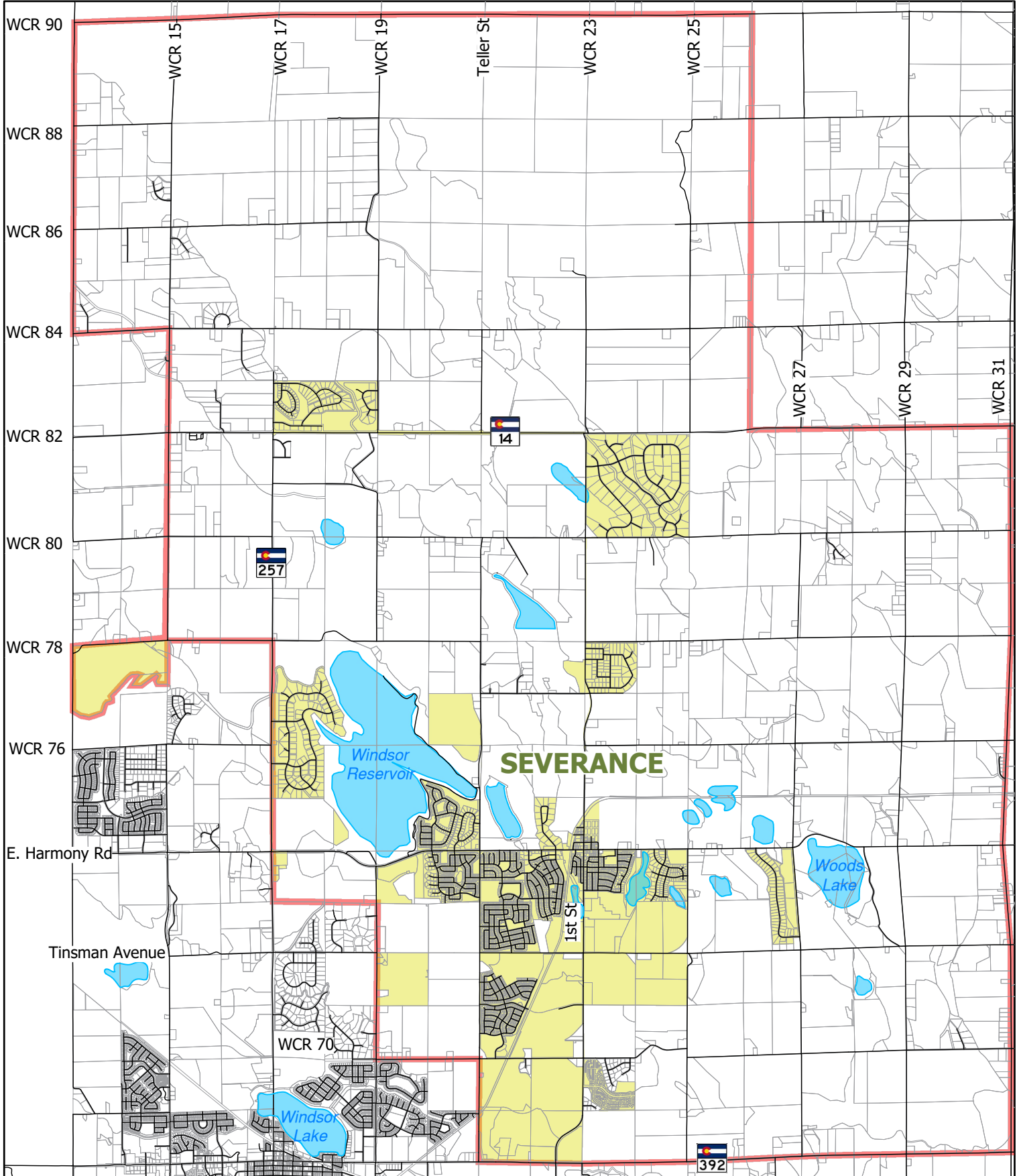
WELD COUNTY 2045 TRANSPORTATION PLAN (2020)

Weld County adopted the *2045 Transportation Plan* in November 2020. The updated plan addressed changes that have been made since the *2035 Transportation Plan*.

The *2045 Transportation Plan* serves as an integral part in the decision-making process for Weld County staff and elected officials. The primary purpose of this document is to provide technical information that can be used as a basis for formulating transportation related policies.

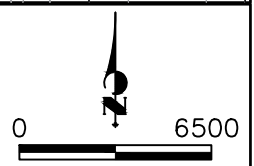
The *Weld County 2045 Transportation Plan* serves as an integral part in the decision-making process for Weld County staff and elected officials. The primary purpose of the document is to provide technical information that can be used as a basis for formulating transportation related policies. To ensure the sustainability of Weld County's quality of life, the plan considers the preservation of the rural character, while providing strategies that sustain urban development. The focus of the content in the plan is to provide guidance for future transportation development in Weld County, however there are multiple topics covered throughout the document.





LEGEND

- Growth Management Area
- Severance Town Limits



TRANSPORTATION GOALS AND OBJECTIVES

The Town of Severance is committed to implementing a comprehensive transportation system plan in conjunction with continued development and redevelopment. This requires that a series of incremental steps be taken to logically integrate all elements of a transportation system. In this context, the following Goals and Objectives have been established to guide in the development of this plan and to provide direction for future transportation improvements as funds and growth dictate.

Goal 1

Maintain and improve the existing transportation system.

- Objective 1-1: Maintain the existing streets, sidewalks, and trails that comprise the Town's transportation network.
- Objective 1-2: Maintain traffic operations at acceptable levels of service (LOS).
- Objective 1-3: Develop feasible funding strategies to maintain the transportation system.
- Objective 1-4: Preserve the functional integrity of the roadway system through coordinated right-of-way, access and cross-section guidelines.

Goal 2

Provide a safe and efficient transportation system that serves all modes of travel.

- Objective 2-1: Implement infrastructure improvements that reduce congestion and increase safety for the traveling public.
- Objective 2-2: Identify and prioritize missing connections for each mode of transportation.
- Objective 2-3: Promote alternative modes of transportation by providing options for bicycle and pedestrian travel including sidewalks, bike lanes or other on-street accommodation, and trails.
- Objective 2-4: Identify areas of the Town where pedestrian facilities and amenities should be enhanced, particularly near schools, parks, business districts, etc.
- Objective 2-5: Support implementation of the trail system identified in the Comprehensive Plan and Parks Master Plan to provide transportation connections and recreational opportunities.
- Objective 2-6: Support expansion opportunities for transit and other cutting-edge transportation opportunities like Intelligent Transportation Systems (ITS).

Goal 3

Encourage development that supports and enhances the transportation system.

- Objective 3-1: Maintain a transportation system that offers a “small town” sense of community but allows for growth and commercial opportunities.
- Objective 3-2: Coordinate land use and transportation planning to promote reduced travel demand.
- Objective 3-3: Minimize the transportation impacts of future growth on existing residences and businesses while recognizing and respecting private property rights.
- Objective 3-4: Require traffic impact studies for proposed developments that identify needed improvements to mitigate traffic impacts.
- Objective 3-5: Maintain and administer multimodal cross-sections and street construction standards that meet minimum Town requirements, while allowing for some flexibility in the design of planned developments

Goal 4

Support the regional transportation system.

- Objective 4-1: Participate in ongoing regional transportation planning efforts through the North Front Range Metropolitan Planning Organization (NFRMPO).
- Objective 4-2: Cooperate with the Colorado Department of Transportation (CDOT), the NFRMPO, Weld County, and adjacent communities to coordinate improvements to the area’s transportation system.
- Objective 4-3: Participate in regional transit projects.

Goal 5

Implement, review, and update the long-range transportation plan.

- Objective 5-1: Review and update the Transportation Plan periodically to ensure compatibility with the needs of the community and the Town’s vision for the future.
- Objective 5-2: Preserve right-of-way consistent with the long range needs identified in the Transportation Plan.
- Objective 5-3: Coordinate with planning partners at the municipal, county, regional, state, and federal levels to pursue transportation funding.
- Objective 5-4: Periodically review the Town’s transportation impact fee program to ensure the fees offset the cost of development-related impacts to the Town’s roadway network.
- Objective 5-5: Explore alternative mechanisms for funding transportation improvements such as special improvement districts.

- Objective 5-6: Measure and document progress toward implementation of the Transportation Plan regularly as a part of the Capital Improvement Plan (CIP) development process.

EXISTING CONDITIONS

In order to understand how transportation is provided to Severance residents, an inventory of the existing transportation system within the GMA was conducted. This is an important part of the planning process since it helps identify areas, which are in need of improvement.

The roadway inventory includes a collection of data associated with the existing street system, which included laneage, paving, traffic control devices, posted speed limits, and the compilation of traffic counts and accident data. In addition to the roadway system, the inventory includes a multimodal inventory including pedestrian, bicycle and transit facilities.

The identification of the roadway element of the Severance Transportation Plan started with the street network from the previous *2015 Severance Transportation Plan*, prepared by Felsburg, Holt and Ullevig. Additions and modifications were made during the development of the *2020 Comprehensive Plan* based on studies of specific future land developments and analysis of the relationship between the new land uses and the transportation system.

ROADWAY CONDITIONS

The principal component of Severance's transportation system is the roadway network, with major streets primarily located along mile-spaced section lines. Figure 2 and Figure 3 illustrate the existing street system and surface types (paved versus gravel) of the roadway segments. Figure 2 and Figure 3 also document lane and paved shoulder widths of the paved roadways. All of the roadways in the GMA have two through lanes, and the paved roadways have lane widths generally ranging from 11 to 12 feet. The state highways (SH 14, SH 257, and SH 392) generally have paved shoulders ranging from 6 to 8 feet, though SH 392 has some portions with paved shoulders of 2 feet. The only major non-state roadway with paved shoulders is E. Harmony Road from SH 257 to WCR 23, which has a variety of shoulder widths. All other major non-state roadways have no paved shoulders, while some residential and collector roads within the Town Limits have on-street parking or wide cross-sections with no striping.

REGIONALLY SIGNIFICANT CORRIDORS

The North Front Range Metropolitan Planning Organization (NFRMPO) has identified Regionally Significant Corridors throughout the region, which serve as regional connections between North Front Range communities. Within the Severance GMA there are five such corridors: SH 14, SH 257, SH 392, WCR 27, and E. Harmony Road. Figure 2 highlights these Regionally Significant Corridors within the GMA, while Figure 4 provides a regional view of the corridors.

STATE HIGHWAY 14

SH 14 is an east-west state highway, running along the northern border of the GMA. To the west it provides access to Fort Collins, I-25 and US 287. To the east it provides access to Ault, US 85 and further east to Sterling and I-76. The primary accesses to downtown from the highway are by SH 257 (via E. Harmony Road) and WCR 23. SH 14 is two lanes throughout the GMA, with paved shoulders ranging from 6 to 8 feet wide.

STATE HIGHWAY 257

SH 257 is a north-south state highway, running along the western portion of the GMA from SH 14 and on south to Windsor, US 34 and Milliken. The primary access to downtown from the highway is via E. Harmony Road. SH 257 is two lanes throughout the GMA, with wide paved shoulders ranging from 6 to 8 feet wide.

STATE HIGHWAY 392

SH 392 is an east-west state highway, running along the southern boundary of the GMA. To the west it provides access to Windsor, southern Fort Collins, northern Loveland, I-25, and US 287. To the east it provides access to US 85 between Eaton and Greeley. SH 392 is two lanes throughout the GMA, with 8-foot paved shoulders west of WCR 23 and 2-foot paved shoulders east of WCR 23.

WCR 27

WCR 27 is a north-south roadway serving as the eastern boundary of the GMA. It is paved and fully connected from E. Harmony Road to SH 60 just east of Milliken, providing access to US 34 and western Greeley. North of E. Harmony Road it is unpaved with missing connections between WCR 76 and WCR 78, and between WCR 80 and SH 14. It is a two-lane facility with no paved shoulders along the paved portions within the GMA. Its designation as a Regionally Significant Corridor conveys the region's desire for the corridor to become a continuous facility in the future.

WCR 74 (E. HARMONY ROAD)

WCR 74 is a major county roadway that bisects the GMA running east-west through downtown Severance. To the west it provides access to Fort Collins, Timnath and I-25, and the road is named Harmony Road. To the east it provides access to Eaton, US 85 and rural areas. Wide eight-foot paved shoulders are present from SH 257 to Ponderosa Drive, after which the roadway cross-section varies to WCR 23,



including a bike lane along most of the southern portion of this segment. No paved shoulder is present east of WCR 23. At the time of this plan, the Town of Severance renamed WCR 74 to E. Harmony Road within Town limits, therefore, making the roadway corridor a consistent name from Fort Collins to Severance.

JURISDICTION

Certain roadways within Severance fall under the purview of the Town, Weld County, or the Colorado Department of Transportation (CDOT), and infrastructure projects involving these roads require close coordination among agencies. The Town's design and management influence on SH 257, SH 392 and SH 14 is limited by the policies, requirements, regulations, and recommendations established by the State. The Town owns and maintains all other roadways within Town limits.

TRUCK ROUTING

Existing truck routes for the Town of Severance include SH 14, SH 257, SH 392, E. Harmony Road, WCR 19, and WCR 23. There may be opportunities to realign the truck routes around downtown Severance. The preferred truck routes will be discussed later in this plan.

CONNECTIVITY

The Roadway Plan from the *2015 Transportation Plan* shows that the Town of Severance has a comprehensive transportation network with good access to all parts of the community. There are also several opportunities to improve connectivity, and potential projects are identified mostly located along existing alignments between arterial and collector roads.

INTERSECTION CONTROL

The purpose of intersection traffic control is to ensure safe and efficient traffic operation by assigning right-of-way between conflicting traffic streams. This assignment of right-of-way provides uniform and predictable movements of vehicles, bicyclists, and pedestrians. Typical intersection traffic control may consist of a traffic signal, a STOP sign on the minor street approaches or a roundabout.

There are currently four signalized intersections in the GMA, which include the following:

- SH 14 and SH 257
- SH 257 and E. Harmony Road
- SH 392 and WCR 31
- E. Harmony Road and WCR 21

The top three traffic signals listed above are owned and maintained by CDOT. The traffic signal at E. Harmony Road and WCR 21 was installed in 2019 and is the first traffic signal owned and maintained by the Town. Figure 5 illustrates the existing traffic signals in the Severance GMA.

All four-way intersections of section-line roads have stop sign control on the minor street approach, and several “T” intersections have no control. The Town’s Public Works Department maintains a database of all stop sign locations.

SPEED LIMITS

An inventory of existing speed limits was performed and is shown on Figure 6. With the exception of a few segments of WCR 21 and WCR 72, County roads which are currently unpaved have no posted speed limits. A few paved roads also have no posted speed limit including southbound WCR 27 south of E. Harmony Road, WCR 70 east of WCR 23, a small portion of WCR 80 east of Belmont Farms, and all paved roads north of SH 14 within the GMA. In general, posted speed limits on paved County roads outside of Town Limits are between 45 and 55 miles per hour (mph). Posted speed limits on state highways are generally 65 mph, except for SH 392 (55 mph) and some approaches to major intersections.

Within the Town Limits, local roads without connectivity outside of Severance are 25 mph. Regional County roads such as WCR 23 and E. Harmony Road are signed anywhere from 25 mph up to 45 mph, with speeds lowered when approaching downtown.

RADAR SPEED STUDIES

With new developments being proposed across the Town of Severance, roadway planning becomes integral in maintaining a safe transportation system for both commuters and pedestrians. A large aspect of road traffic safety is speed control, particularly within residential areas with high pedestrian traffic. All Traffic Data was utilized to set up speed radars on five collector roadways to determine the current behavior of vehicular travel. A summary of the data is shown in Table 1 and the actual speed data is included in **Appendix B**.

The results show that the vehicle travel is occurring at acceptable speeds at most locations except Tailholt Avenue north of Harvest Moon Drive. The 85th percentile speed of traffic crossing this location was 30 MPH, which is 5 MPH above the posted speed limit on this street and may warrant mitigation. Potential mitigation will be discussed later in this plan.

Table 1: Summary of Radar Speed Studies

Street	Location	Speed Limit (mph)	85 th Percentile Speed (mph)	
			NB/EB	SB/WB
Audubon Blvd	n/o Ponderosa Dr	25	24	23
Avery Plaza St	s/o Timber Ridge Pkwy	25	22	21
Timber Ridge Pkwy	w/o Avery Plaza St	25	24	24
Tailholt Ave	n/o Harvest Moon Dr	25	24	30
Ponderosa Dr	w/o Windflower Way	25	28	24

TRAFFIC VOLUMES

Weld County and CDOT collect traffic volume information on a regular basis. In the Severance GMA, CDOT traffic counts on state highways are from 2019, while Weld County traffic counts were conducted at different locations from 2018 through 2020.

The impact of COVID-19 on trip characteristics (volume, mode, time of day, length, etc.) is substantial, and JR Engineering suspects that travel patterns may not return to pre-COVID-19 “normal” anytime soon, if ever. Town Staff and JR discussed alternatives for collecting traffic counts for the intersections within Town limits, and the use of Big Data was selected. StreetLight was the Big Data company that was utilized. StreetLight data offers insights into trip attributes such as duration, length, speed, and circuitry. This data can be dynamically filtered over various time periods to provide a comprehensive understanding of travel patterns. Using Big Data such as StreetLight was necessary to understand the difference in pre-COVID and current travel patterns.

In summary, higher traffic volumes are experienced on the state highways and on E. Harmony Road. WCR 19 also experiences a fair amount of traffic as a parallel alternative to SH 257. Existing traffic count data is included in **Appendix B**.

CRASH HISTORY

Based on analysis of 2018 and 2019 accident data and interviews with Town staff, an inventory of problematic intersections in the Town was developed. Intersections with high accidents rates (rates of above 1) are shown on the Figure 7. It is common to prioritize intersections according to the accident rate. The accident rate may be determined for property damage only (PDO), personal injury, fatal accidents, or the total thereof. The accident ratio is the ratio of the

number of accidents per year to the average daily traffic (ADT). The rate is reported as an RMEV (i.e., rate per million entering vehicles).

The following are the intersections with the highest accident rates within the two-year analysis period:

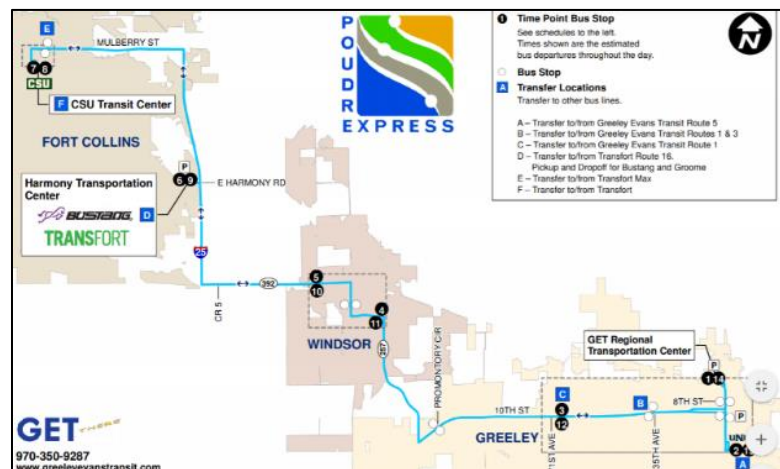
- WCR 70 and WCR 21
- WCR 72 and WCR 23
- WCR 23 and WCR 70
- E. Harmony Road and WCR 21
- SH 257 and E. Harmony Road
- SH 392 and WCR 23

It should be noted that a traffic signal was installed at the E. Harmony Road and WCR 21 intersection in 2020. The SH 257/E. Harmony Road and SH 392/WCR 23 intersections are also under the purview of CDOT.

Crash statistics, including tables with the number of total crashes, injury crashes, and fatal crashes by road segment and intersection, are included in **Appendix C**.

TRANSIT

Presently there is no transit service in the Town of Severance. The Poudre Express, a dedicated commuter bus line connecting Greeley, Windsor and Fort Collins, has been operating since January 2020. The Poudre Express does not include any stops in Severance.



Source: www.greeleyevanstransit.com

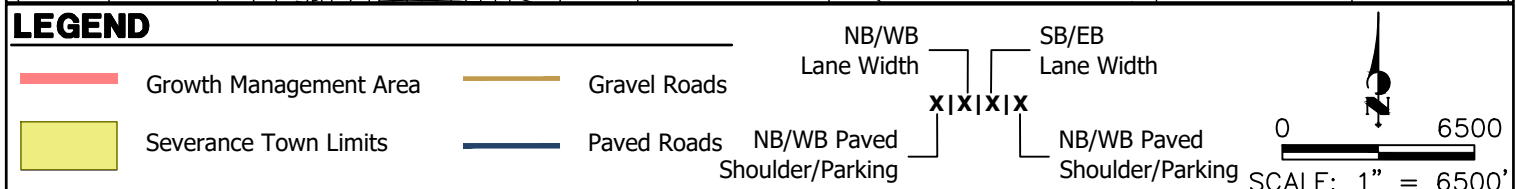
PEDESTRIAN AND BIKE NETWORK

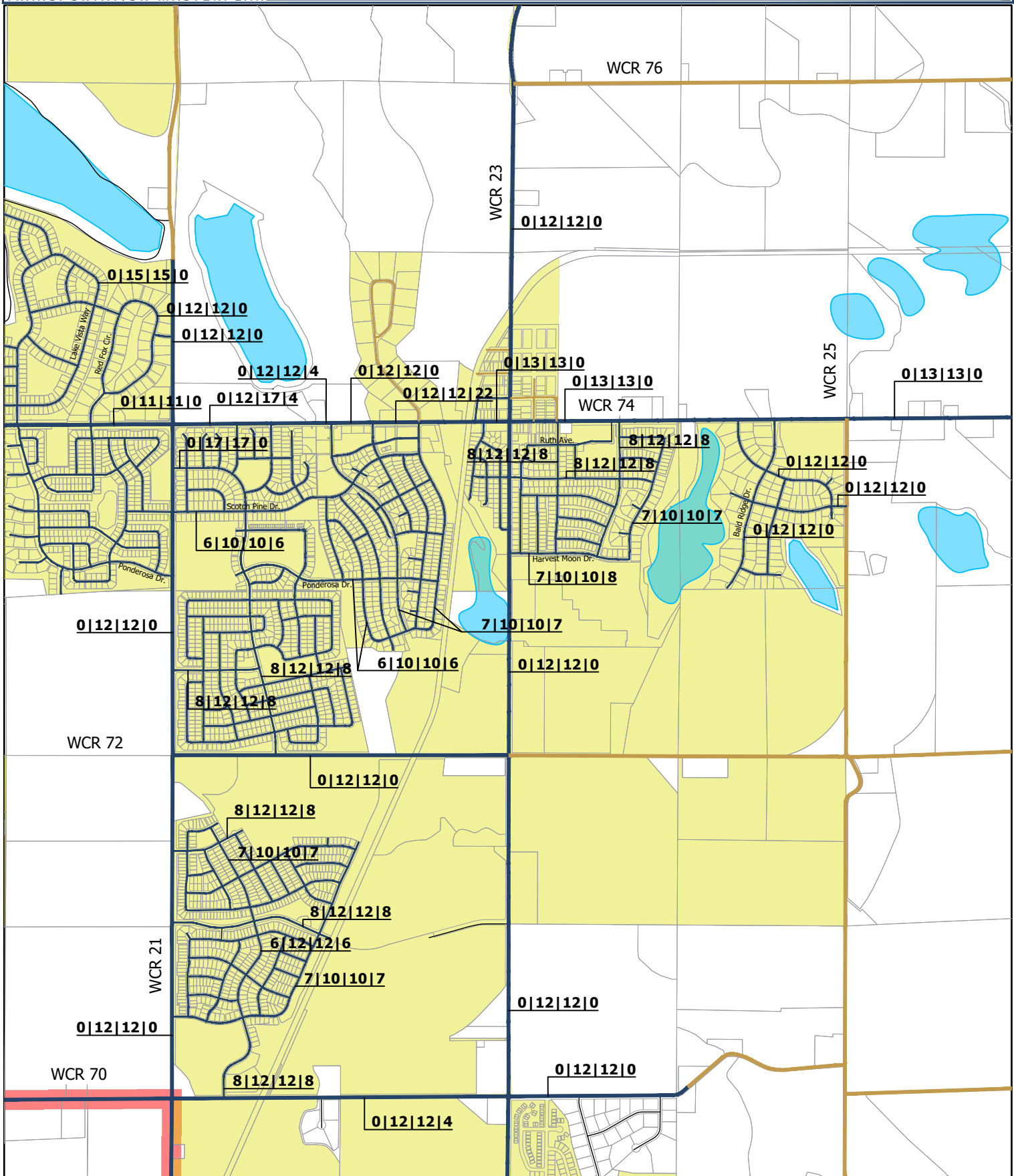
Existing assets throughout the Town such as the Severance Greenway, the Great Western Trail, and a network of neighborhood sidewalks offer an excellent foundation for expanding connectivity as the Town grows. Through this planning process, an inventory of existing trails

and sidewalks was conducted. On-site meetings were held that walked many of the trails to assess their conditions.

Two public meetings were held as part of the Transportation Plan update. On May 14, 2020 and September 23, 2020, a presentation of potential pedestrian and bicycle improvements for the Town was shared with Severance residents. The existing pedestrian and bike network is shown in Figure 8.







LEGEND



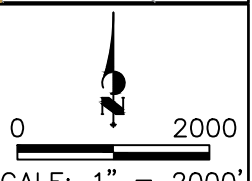
Growth Management Area
Severance Town Limits

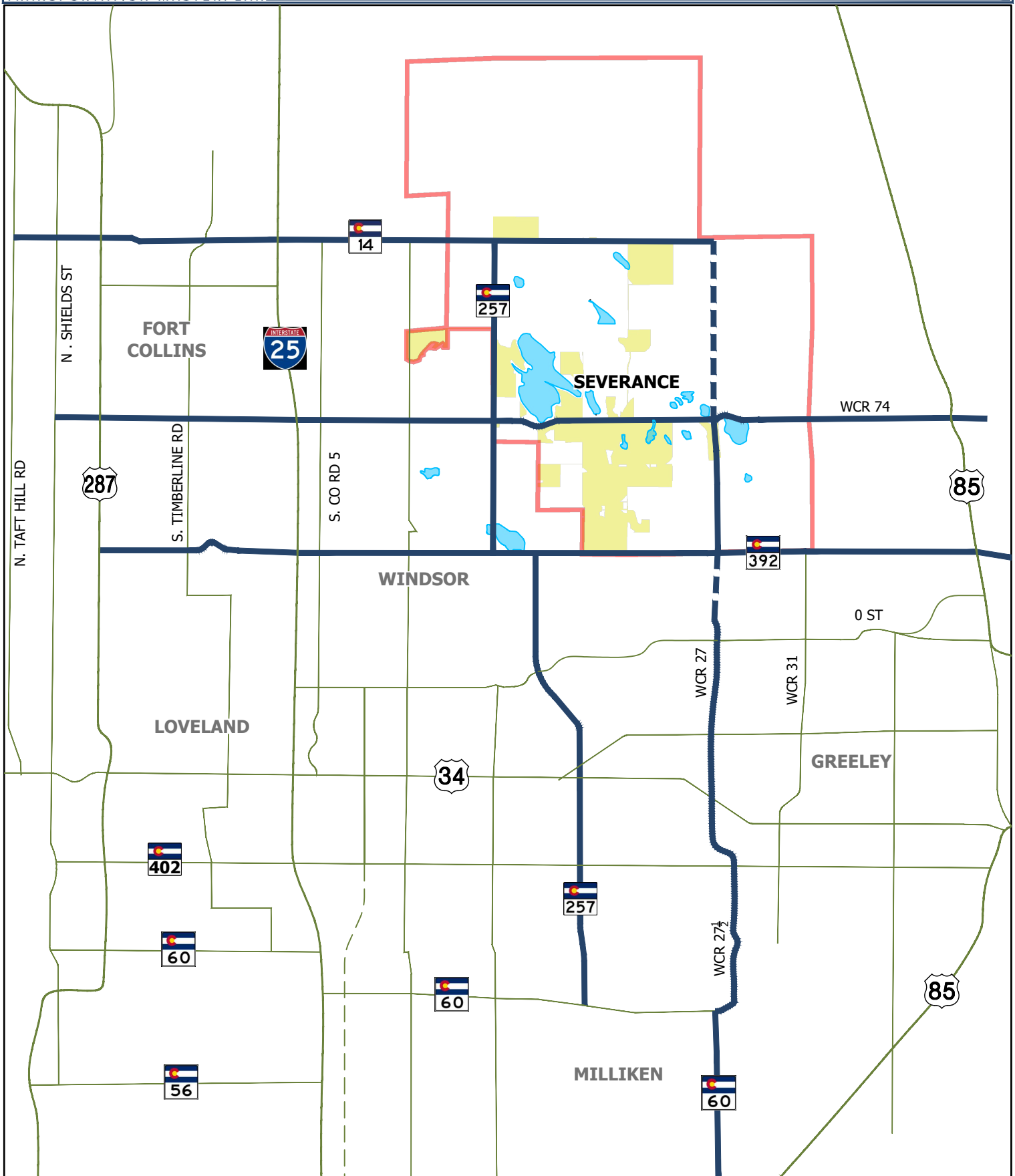


Gravel Roads
Paved Roads

NB|WB
Lane Width
NB|WB Paved
Shoulder/Parking

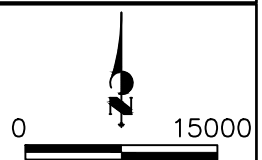
SB|EB
Lane Width
NB|WB Paved
Shoulder/Parking

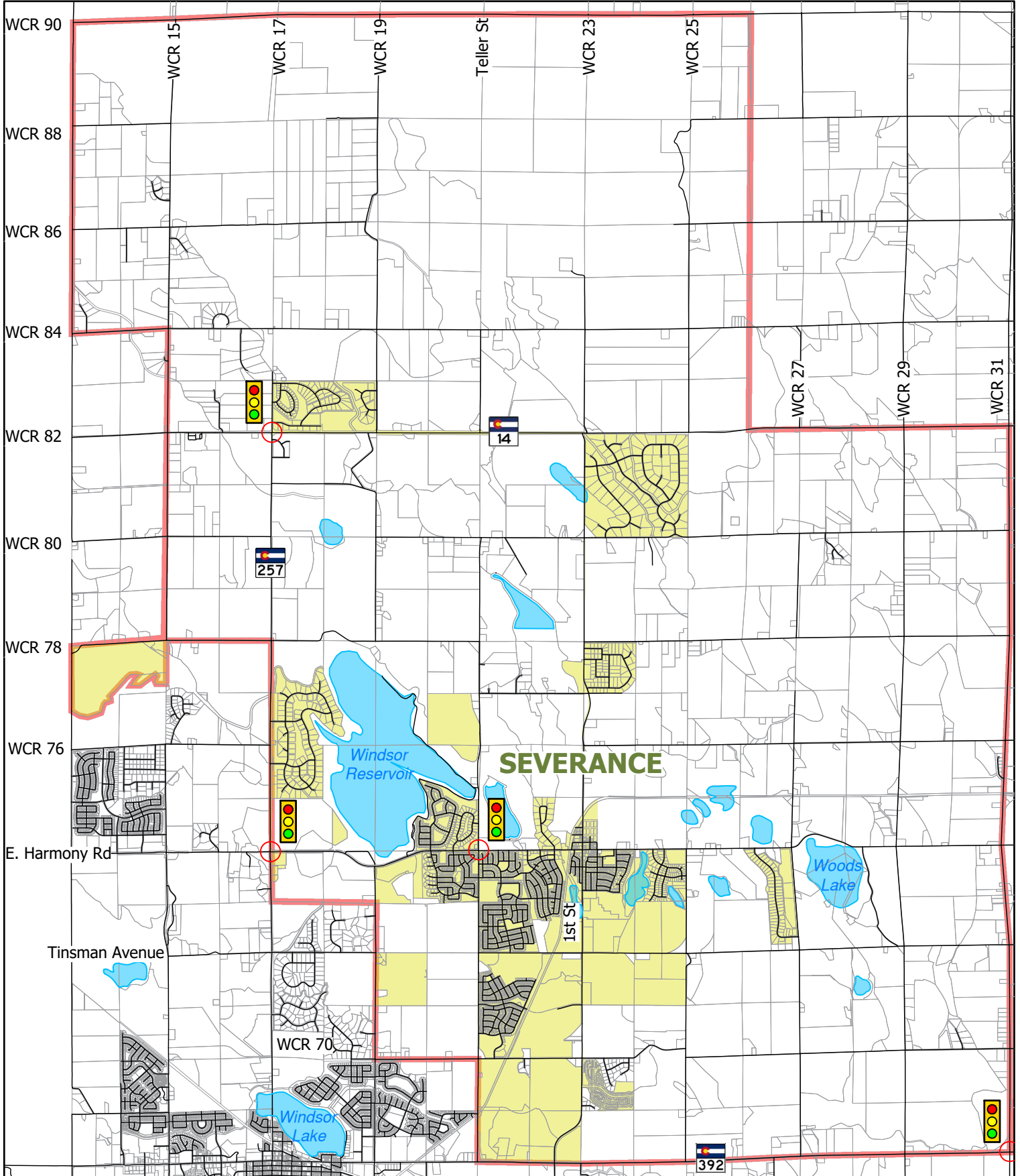




LEGEND

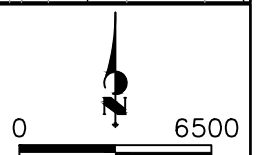
- Growth Management Area
- Severance Town Limits
- Regionally Significant Corridors through Severance GMA
- Other Regionally Significant Corridors



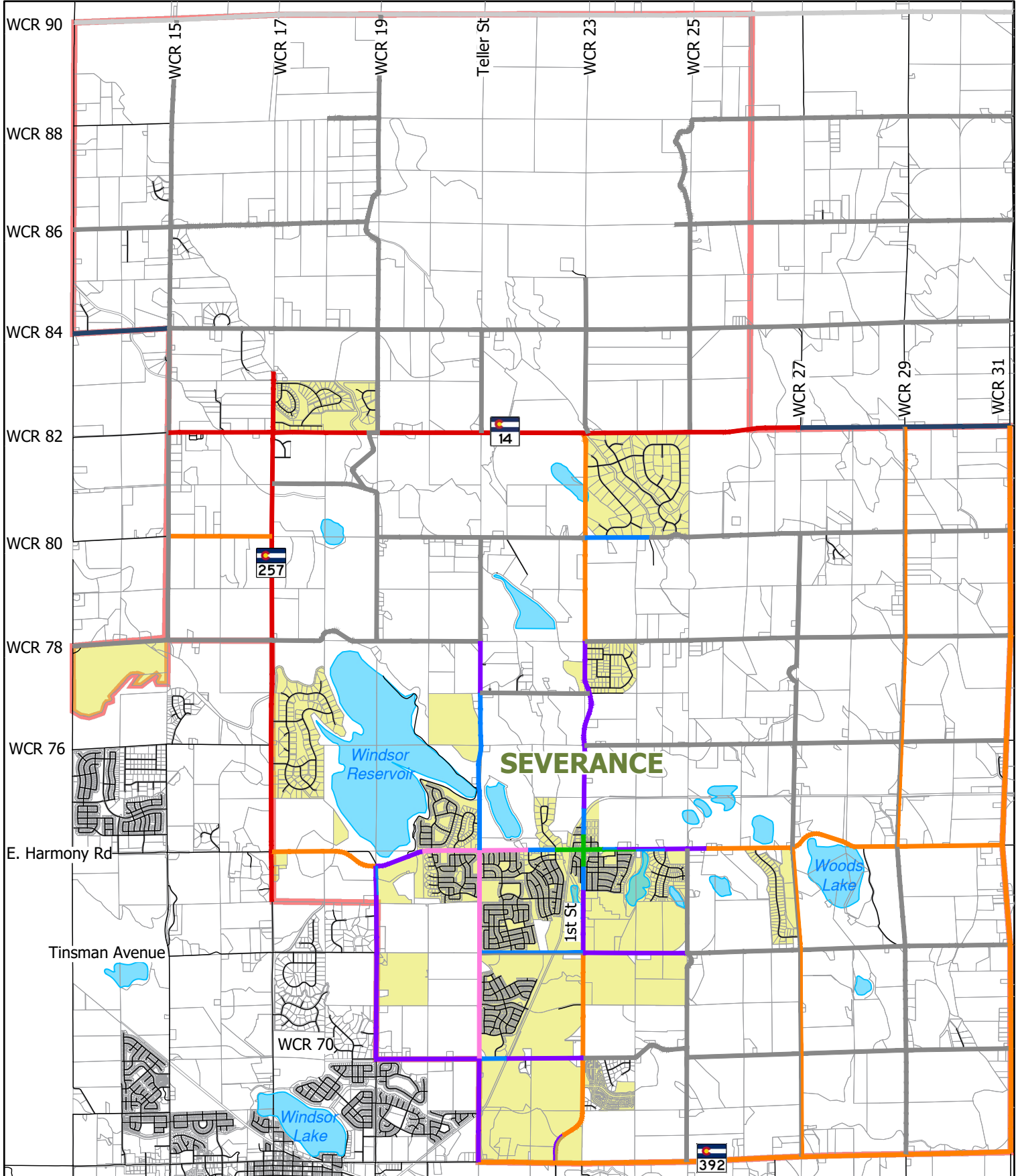


LEGEND

- Growth Management Area
- Severance Town Limits
- Existing Signal-Controlled Intersection

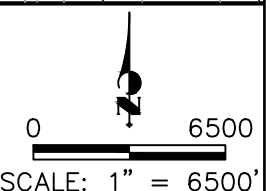


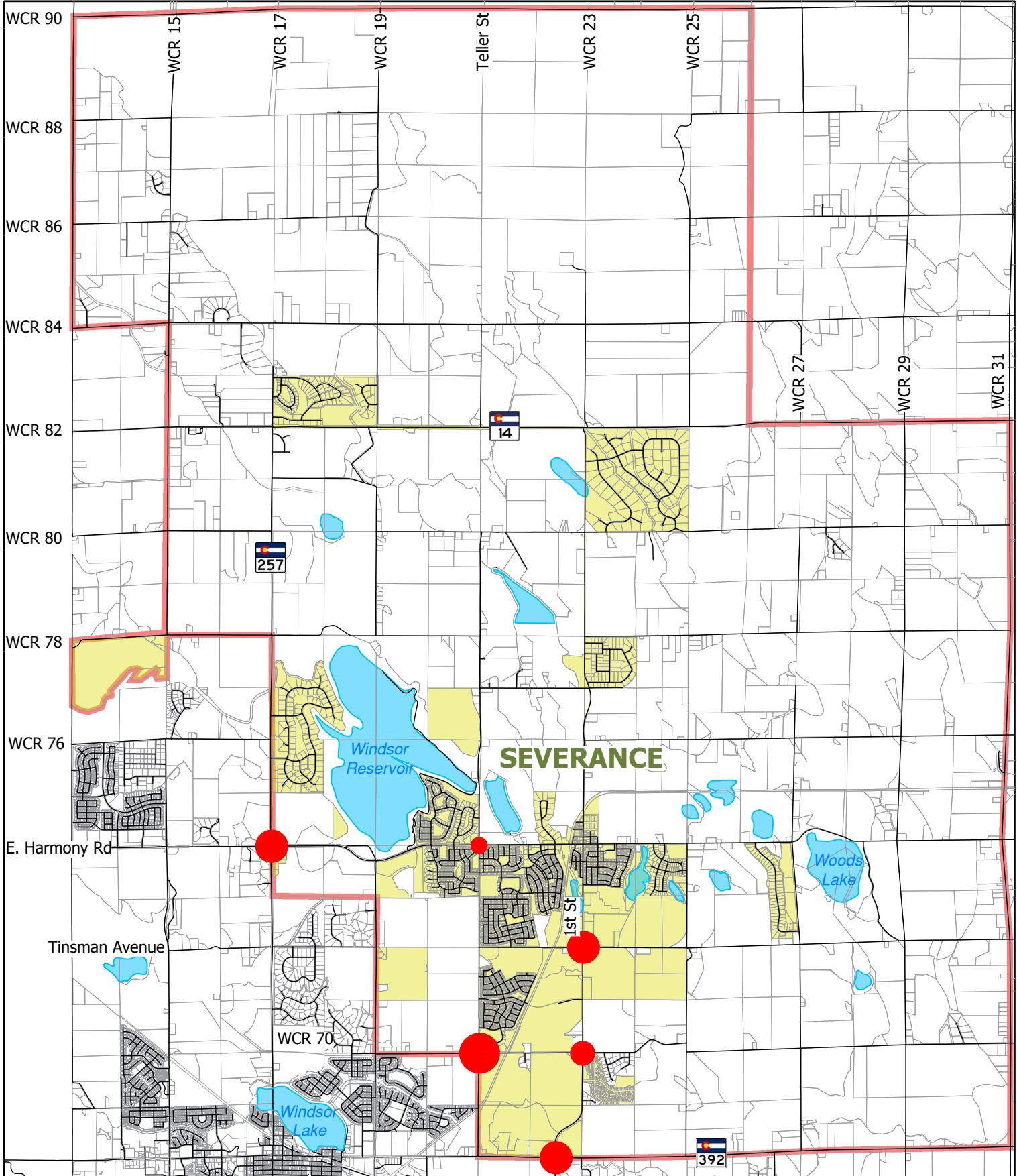
SCALE: 1" = 6500'



LEGEND

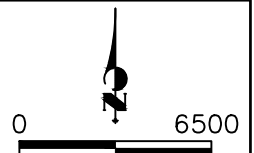
- | | | | |
|--|---|--|--|
| Growth Management Area | No Posted Speed | 35 MPH | 50 MPH |
| Severance Town Limits | 25 MPH | 40 MPH | 55 MPH |
| | 45 MPH | 65 MPH | |



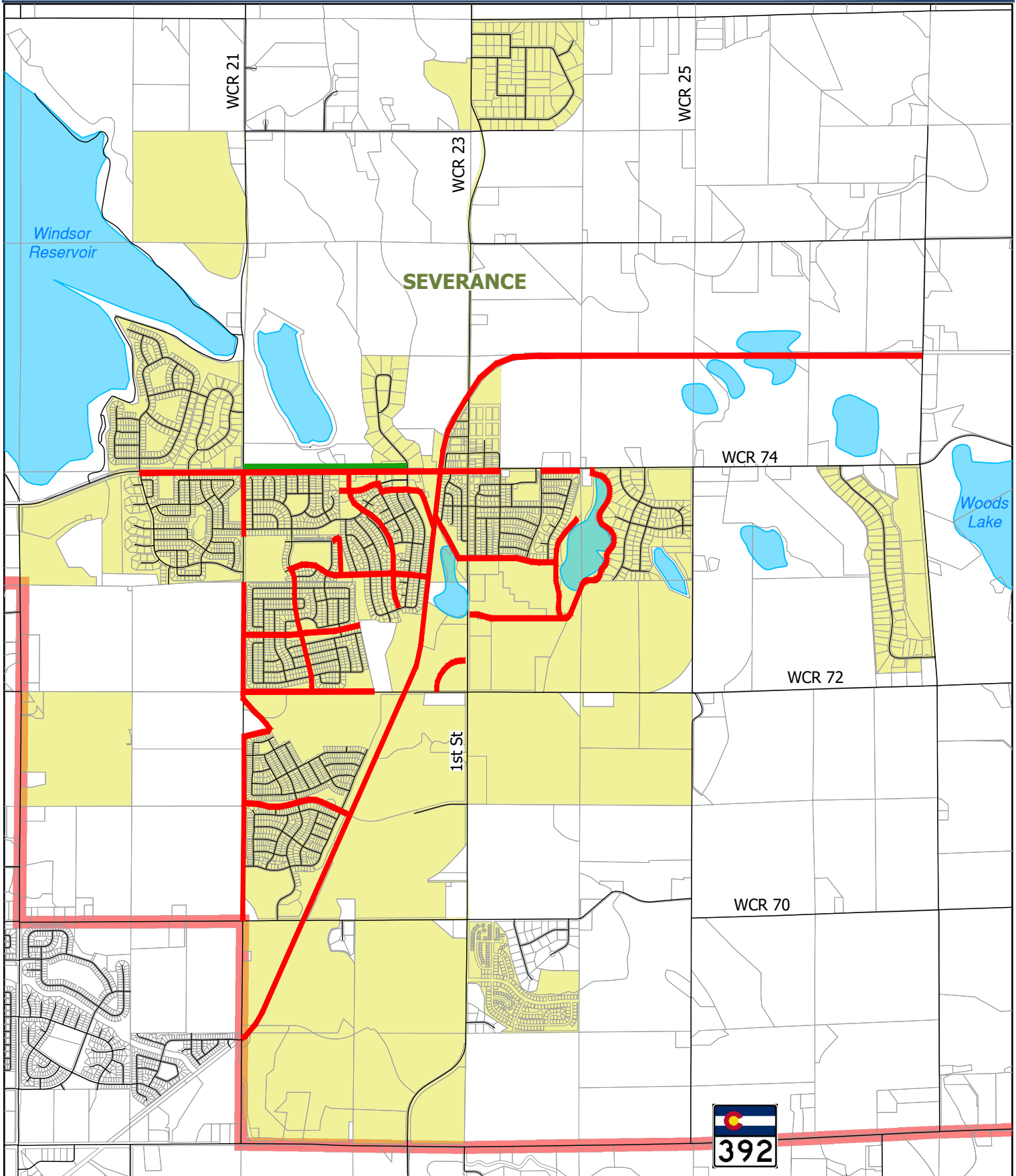


LEGEND



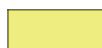

- Growth Management Area
- Severance Town Limits
- High accident rate intersection

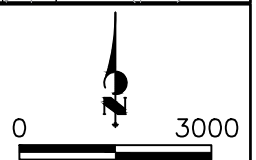


SCALE: 1" = 6500'



LEGEND

- | | | | |
|--|------------------------|---|--------------------|
|  | Growth Management Area |  | Existing Trails |
|  | Severance Town Limits |  | Existing Bike Lane |



SCALE: 1" = 3000'

FORECASTED GROWTH

In order to properly identify potential improvement projects for Severance's transportation system, it is important to first understand the nature and volume of future traffic in the planning area. It is also useful to understand existing traffic flow patterns, as presented in the previous chapter. To help facilitate these analyses, the NFRMPO's travel demand model was utilized. The model gives the ability to not only analyze the GMA, but also provides a regional context of traffic flows.

Two basic inputs to the NFR model are the land use estimates and the transportation network. The amount of traffic which different types of land uses (residential, retail, office, industrial, etc.) generate has been measured for the North Front Range and around the country. The amount of development (number of households or square feet of businesses) can then be used to determine the volume of traffic that will be generated from any specified area. In order to develop these specific allocations of residential and commercial development throughout the region, the NFRMPO has subdivided its planning area into traffic analysis zones (TAZs). In order to more accurately forecast future traffic volumes and patterns in the Severance planning area, the original 16 TAZs representing the area were previously subdivided into 38 zones and now are further distributed among 48 TAZs. Figure 9 shows the 48 TAZs within the GMA where land use was adjusted to reflect the Town of Severance 2020 Comprehensive Plan.



LAND USE FORECASTS

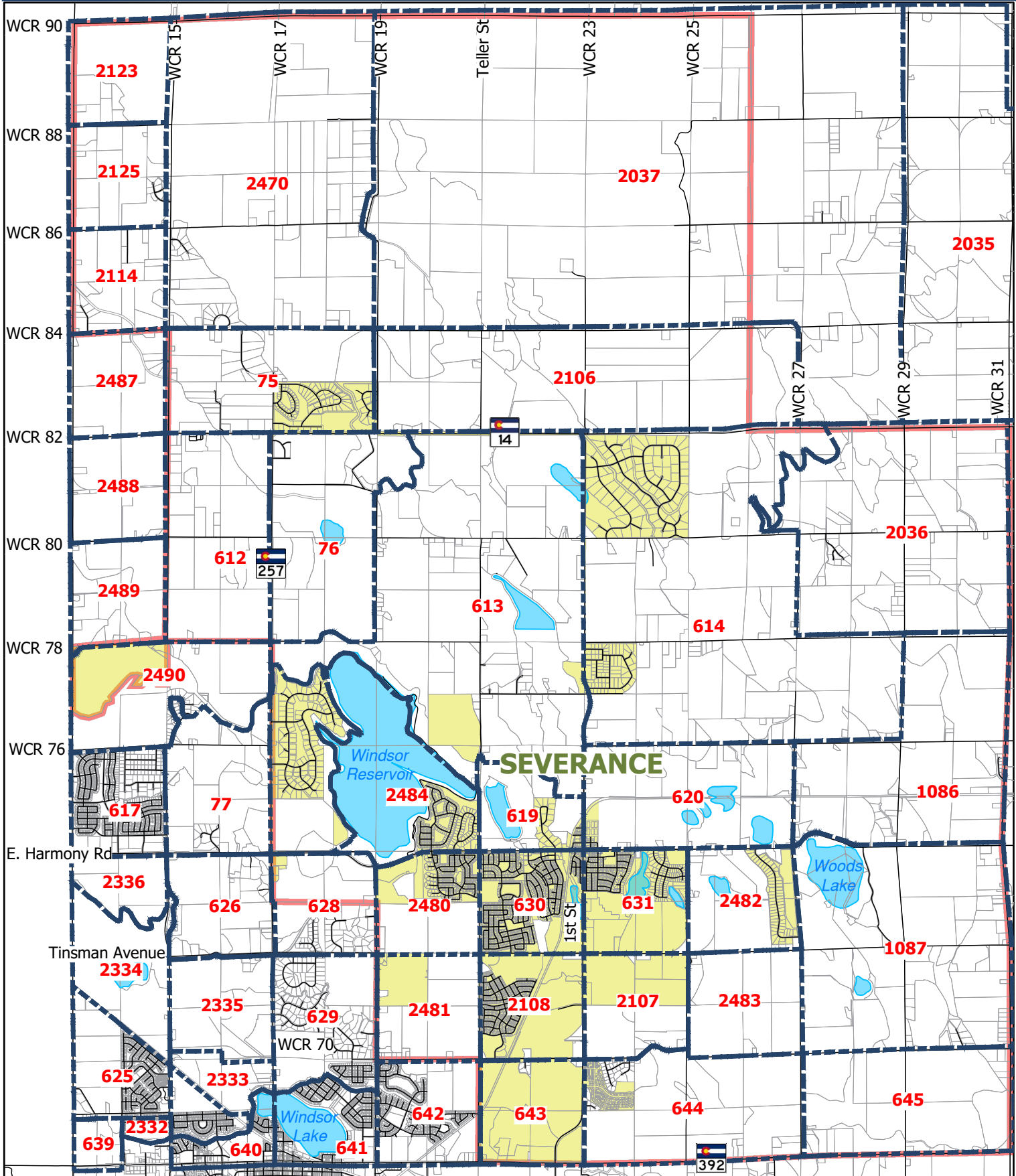
The NFR base year model includes estimates of the number of households and employees for the year 2015. These estimates have been adjusted based on input from Town staff to reflect current conditions.

Within the GMA there are an estimated 2,965 households with a current population of 9,000 and 1,083 employees. The generated trips include a combination of origins and destinations within and outside the GMA. A trip is defined as a one-way movement from origin to destination. The land surrounding incorporated portions of Severance is primarily agricultural with some small groupings of single-family homes, accounting for the population difference between the NFR base year model and the estimate from the State Demographer's Office.

Future land uses within the GMA were derived from land use types and boundaries set forth by the Town of Severance *2020 Comprehensive Plan*. The future land uses and densities on remaining “developable” land were estimated for 2040 and for full build-out of the GMA, and each were programmed into the NFR 2040 base model, replacing the base land use developed by the MPO in order to more closely represent the Town’s anticipated growth. Documentation of all land use forecasting assumptions is included in **Appendix D**.

PROJECTED TRAFFIC VOLUMES

The future travel demand patterns in the Severance area and the North Front Range region are primarily a function of the population and employment opportunities in the area. The household and employment data outlined in the previous sections were used as input to the NFR travel demand model. The model provided traffic forecasts on the various street networks that were used to assess improvement needs. These forecasted volumes could then be used to identify deficiencies in the roadway network and to evaluate the effectiveness of alternatives. The forecasted 2040 traffic volumes on the existing network are shown on Figure 10.



LEGEND

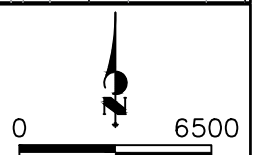


Growth Management Area

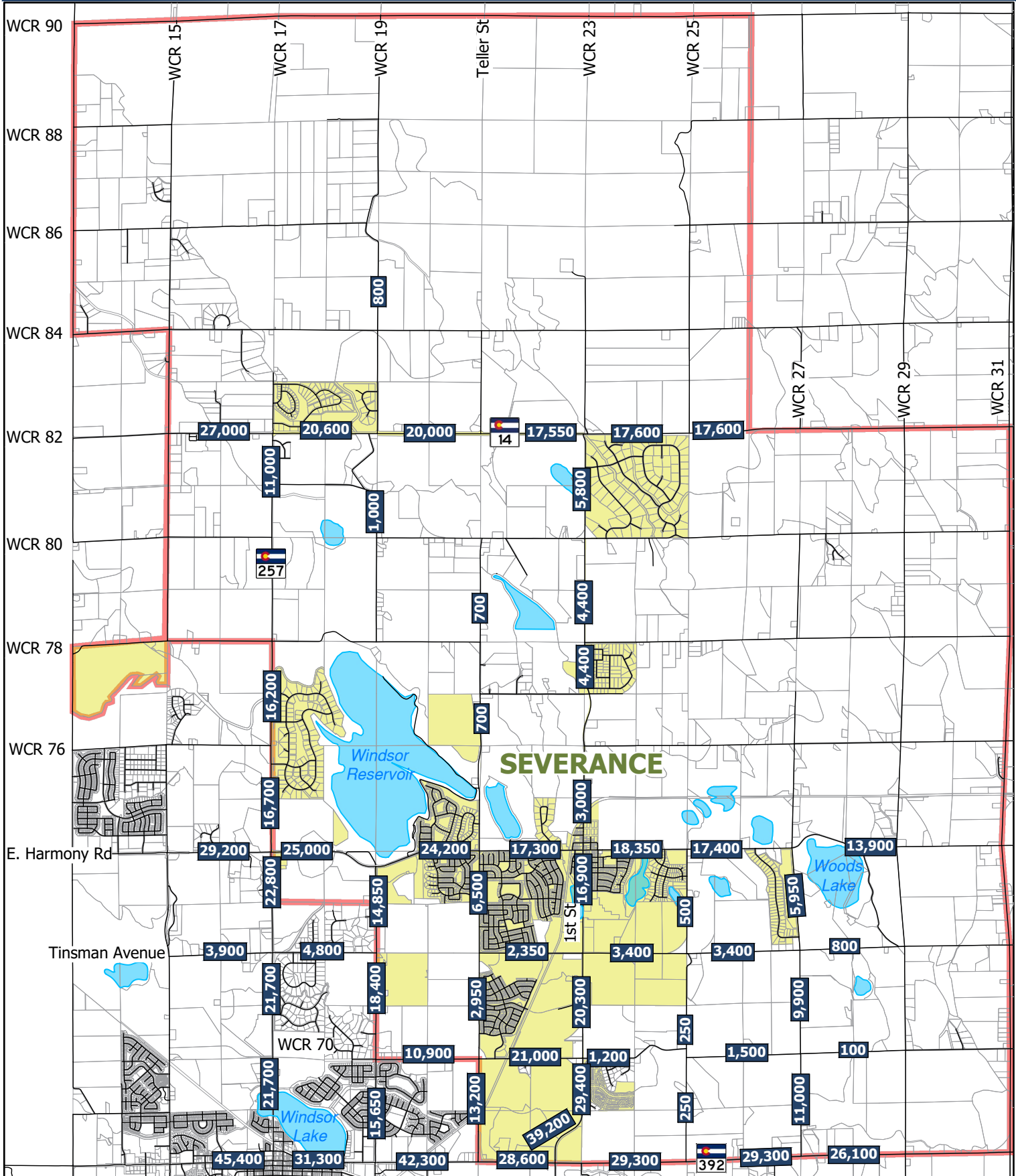
Severance Town Limits



Traffic Analysis Zone

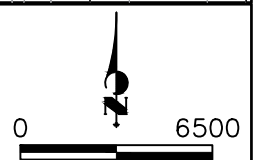


SCALE: 1" = 6500'



LEGEND

- Growth Management Area
- Severance Town Limits
- XXX 2040 Projected ADT



LONG RANGE PLAN

The long range plan was developed to meet the existing and future travel needs of the community in alignment with the Town's transportation goals and objectives. This multimodal plan provides a description of recommended projects, anticipated phasing, and order of magnitude cost estimates. The plans for each mode of transportation should not be considered a static document but should be reviewed and updated as conditions and basic assumptions change, such as the adoption of a new Comprehensive Plan, changes in forecasted growth, and different goals and objectives expressed by residents and the Town Board.

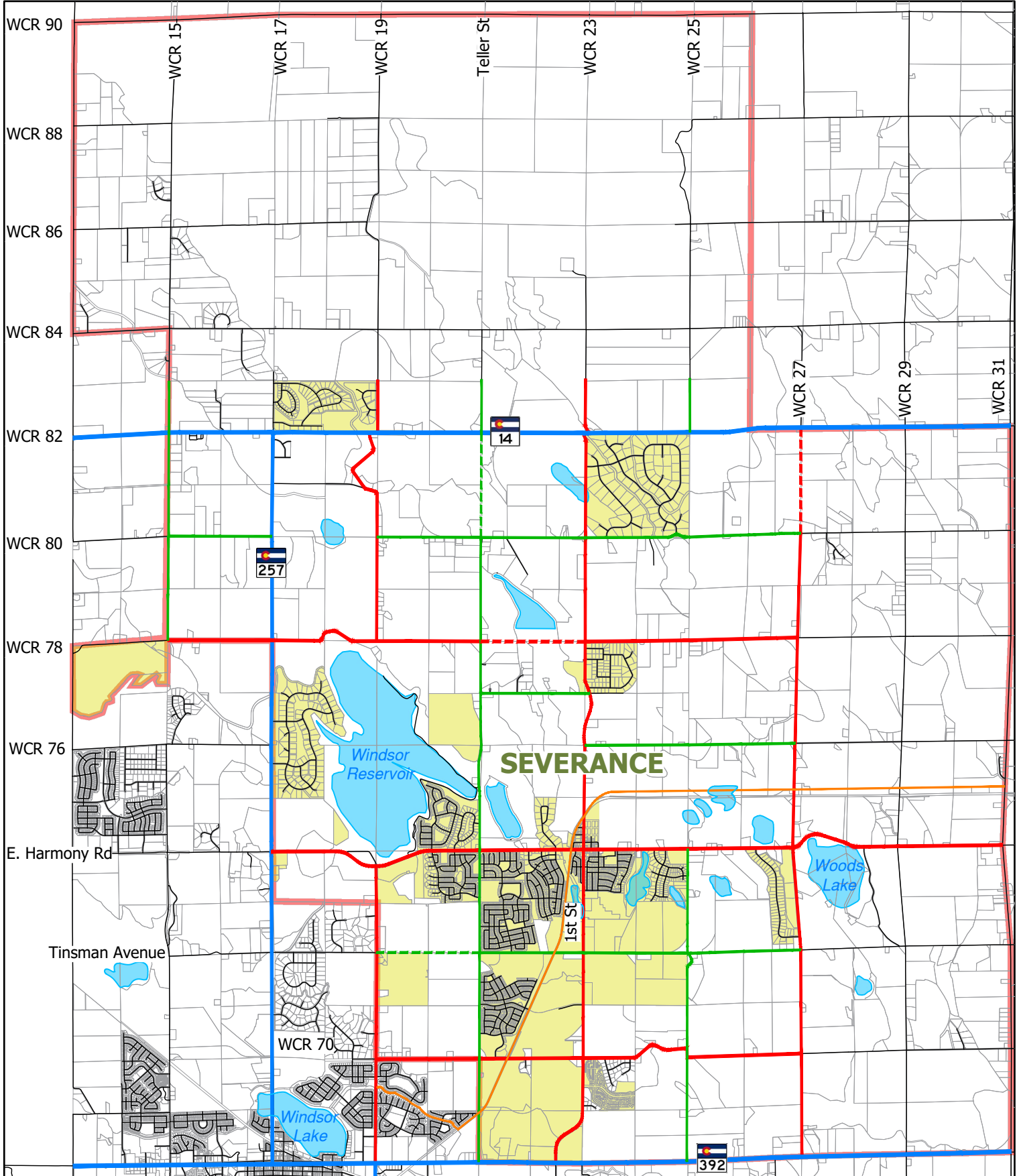
ROADWAY PLAN

Existing streets in Severance generally operate well today, with minimum congestion except as a result of school drop-off/pick-up traffic, left turns from collector streets to arterial roads, and occasional delay caused by truck traffic. The Roadway Plan focuses on providing a well-planned system of streets for the future. The Roadway Plan shown in Figure 11 was developed to accommodate future traffic demands as well as to provide continuity and access to future growth areas, and provides guidance on design standards and functional classifications.

FUNCTIONAL CLASSIFICATION

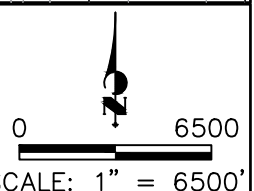
The functional classification of each road defines the relative functional levels of mobility and access assigned to the roadway. The primary function of a roadway is to provide either a high level of mobility (where higher speeds occur and direct land access is restricted) or to provide a high level of accessibility (where speeds are lower and direct land access is emphasized). These two functions, mobility and access, are in conflict; the more access is allowed by a facility, the greater its capacity for mobility is reduced. Freeways, expressways, and arterials have the highest levels of mobility but have the greatest restrictions on access. Local streets serve greater access needs but have reduced capacity for traffic movement. Collectors typically provide a balance of accessibility and mobility. The primary determinates of functional classification are length of trip, average travel speed, frequency of access points, and continuity. Traffic volumes, while often higher on mobility facilities, do not by themselves determine roadway function.

For Severance, each functional classification has two variations: rural and suburban. Although generally adhering to the guidance above, rural roadways give slightly more priority to mobility versus accessibility. State highways are under the jurisdiction of CDOT and prioritize mobility to move regional traffic efficiently. Severance should work with CDOT to maximize the potential of the state highways through its GMA to move regional traffic efficiently and avoid these trips using roadways the Town has prioritized for local use by all modes.



LEGEND

- | | | |
|--|--|--|
| Growth Management Area | State Highway | Collector/Local |
| Severance Town Limits | Major Arterial | Great Western Trail |
| | Minor Arterial | Future Connection |



To further clarify the distinction between the mobility and the accessibility function, the following descriptions of roadway types present general characteristics for various types of roadway functions:

MAJOR ARTERIAL

FUNCTION – Major arterial routes permit rapid and relatively unimpeded traffic movement throughout the Town, connecting major land use elements as well as connecting to outside communities.

PLANNING CHARACTERISTICS – Major Arterial streets should not bisect neighborhoods but should act as boundaries between them. Major Arterial should be spaced approximately one (1) mile apart. Local streets should not intersect with Major Arterial. Street parking is not allowed on Major Arterial. Regulation of Traffic should be accomplished through the use of traffic signs, signals, roundabouts, and channeling. Medians are required on Major Arterial Suburban streets, and medians are optional on Major Arterial Rural streets. Sidewalks and on-street bike lanes should be provided.

MINOR ARTERIAL

FUNCTION – Minor Arterial streets permit relatively unimpeded traffic movement and are intended for use on those routes where four moving lanes and one left-turn lane are required but where a Major Arterial cross section would not be warranted.

PLANNING CHARACTERISTICS – Minor Arterials should be employed where traffic demand dictates. Minor Arterials should be spaced approximately one (1) mile apart and should, where possible, be continuous. Minor Arterial should act as boundaries between neighborhood areas. Intersections with Collectors streets should be at least one-quarter (1/4) mile apart. No street parking is allowed on Minor Arterial streets. Regulation of traffic should be accomplished through the use of traffic signs, signals, roundabouts, and channeling. Traffic signals or roundabouts will normally be required at intersections. Access from streets of lower classification will be permitted, but in all cases will be controlled by traffic control devices. Direct access to abutting property is not permitted unless no other access is reasonably available. Medians are required on Minor Arterial Suburban streets, and medians are optional on Minor Arterial Rural streets. Sidewalks and on-street bike lanes should be provided.

COLLECTOR

FUNCTION – Collectors collect and distribute traffic between Arterials and Local streets and serve as main connectors within communities, linking one neighborhood with another.

PLANNING CHARACTERISTICS – Collectors are generally intended for use within residential neighborhoods or to connect smaller neighborhoods. Intersections with other Collector and

Arterial streets should be at least one-quarter (1/4) mile apart. Regulation of traffic should be accomplished through the use of stop signs, roundabouts and channeling. Sidewalks and on-street bike lanes should be provided. Parking is not permitted on Collector streets. Collectors may provide direct access to properties in approved commercial areas, but this is not permitted in residential areas.

LOCAL – RESIDENTIAL

FUNCTION – Local streets should provide local traffic and have low traffic volumes. Traffic carried by Local streets should have an origin or a destination within the neighborhood and are designed to discourage through traffic. Local streets are typically designed to connect to Collector streets, although they can also be designed as cul-de-sacs or provide connectivity to adjacent subdivisions.

PLANNING CHARACTERISTICS – Local residential streets are intended for use in residential neighborhoods. Local streets should not intersect Collectors or Arterial streets. Parking should be allowed on both sides of local residential streets. Traffic control should be provided using stop signs at all intersections.

OTHER CONSIDERATIONS

Collectors may provide direct access to abutting properties in approved commercial areas, but this is not permitted in residential areas. Intersections are at-grade and typically have some form of traffic control (stop signs). They provide connections between local streets and arterials and usually retain continuity through neighborhoods. Collector streets are typically identified through development plans and thus are not specifically identified in the Roadway Plan other than those that already exist. The Town should work with developers to identify these future road alignments and to encourage developers to provide a system of collectors that enhance the grid network and minimizes discontinuous, curvilinear alignments. Collectors within developing areas should be located opposite each other at arterial intersections, to minimize the number of offset T-intersections along an arterial corridor.

All section-line county roads in the GMA, including E. Harmony Road and WCR 23, have been identified as arterials. Roadways that are built to provide access onto arterials for other future developments are recommended to be classified as collectors as well. Because these roads primarily serve traffic internal to future development, their alignments will be located as development plans for specific areas are initiated.

Some roads may require widening to adhere to their respective cross-section design standards. In these instances, right-of-way should be preserved for future widening. Details about the improvements needed to realize the Roadway Plan are discussed later.

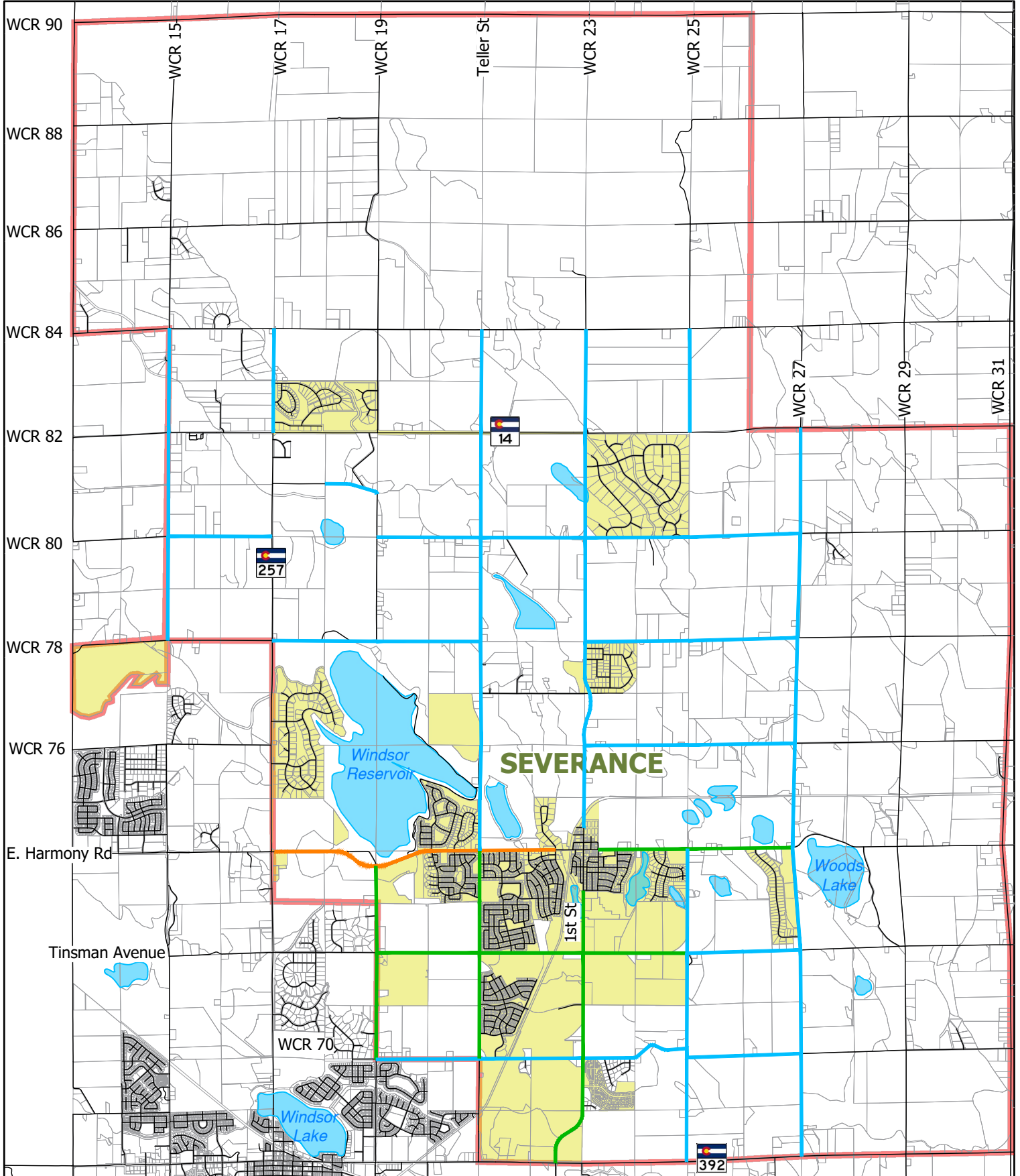
ROADWAY CROSS SECTIONS

The Roadway Plan in Figure 11 assigns functional classifications to roadways in Severance based on their character and their location within land use areas designated in the Town's *2020 Comprehensive Plan*. The typical cross-sections shown in Figure 13 to Figure 20 depict such details as the right-of-way requirements, travel lane widths, median width, and bike lane and sidewalk dimensions for each functional classification. These cross-sections were developed to ensure safe, attractive, and comfortable access and travel for all users within the public right-of-way (often referred to as "complete streets").

Two variations of each functional classification category exist: rural and suburban. Suburban cross sections are for roadways within the Town Core and Suburban land use areas as defined within Severance's Land Use Code. Rural cross-sections are to be used for all areas outside of the Town Core and Suburban uses.

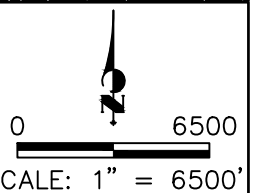
The arterial cross sections show three options: a four-lane major arterial, four-lane minor arterial and two-lane minor arterial. The major arterial has 140 feet of right-of-way, and the minor arterial has 120 feet of right-of-way. Preserving right-of-way for arterials will allow the flexibility to expand the roadway to four lanes if such an improvement is necessary beyond the planning horizon of this plan. The two-lane minor arterial was added to this plan to provide flexibility for roadways designated as this street standard but do not immediately need four lanes.

When two-lane arterials are constructed, the future two lanes should be graded to finished grade in order to minimize future work and to establish appropriate cover over utilities and storm sewer. Figure 12 shows approximate timeframes for when four-lane arterials are warranted.

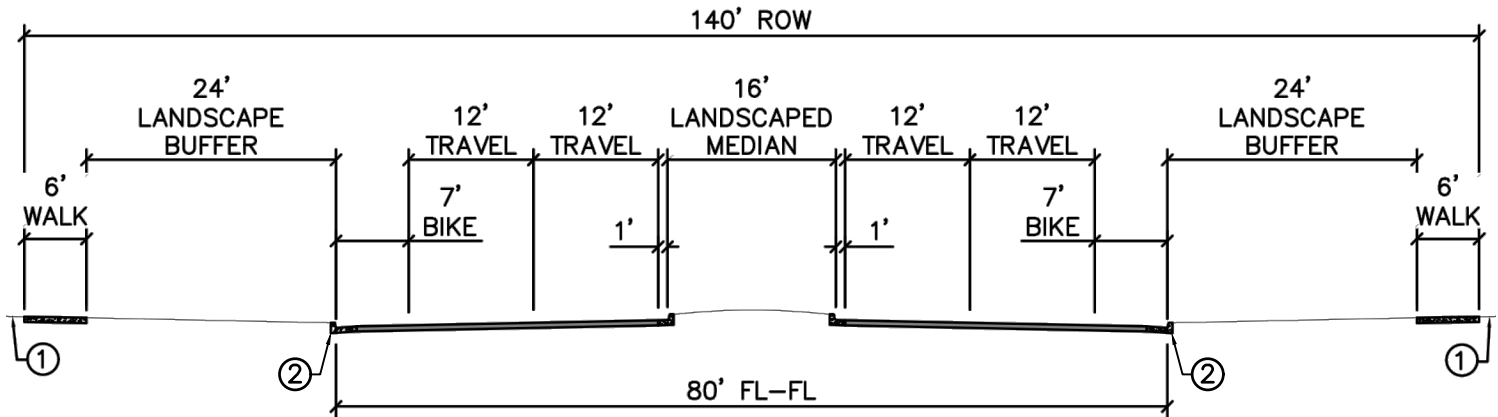


LEGEND

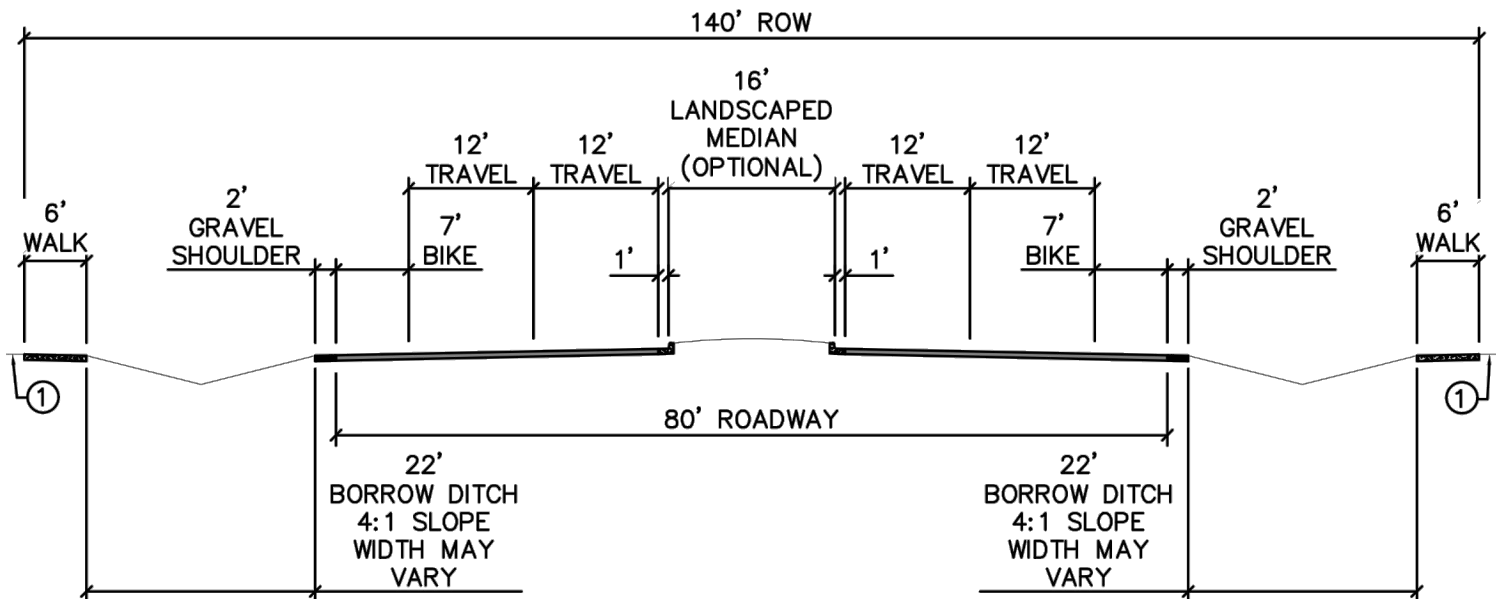
- Growth Management Area
- Severance Town Limits
- Short Term Arterial (0-5 years)
- Mid-Term Arterial (5-10 years)
- Long-Term Arterial (10-20 years)



MAJOR ARTERIAL SUBURBAN CORRIDOR STREET SECTION



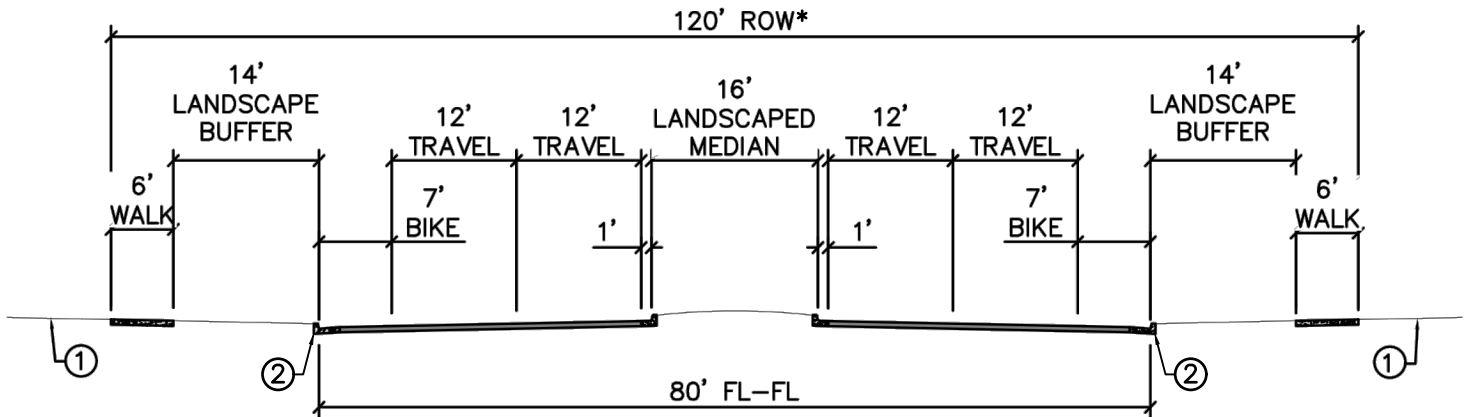
MAJOR ARTERIAL RURAL CORRIDOR STREET SECTION



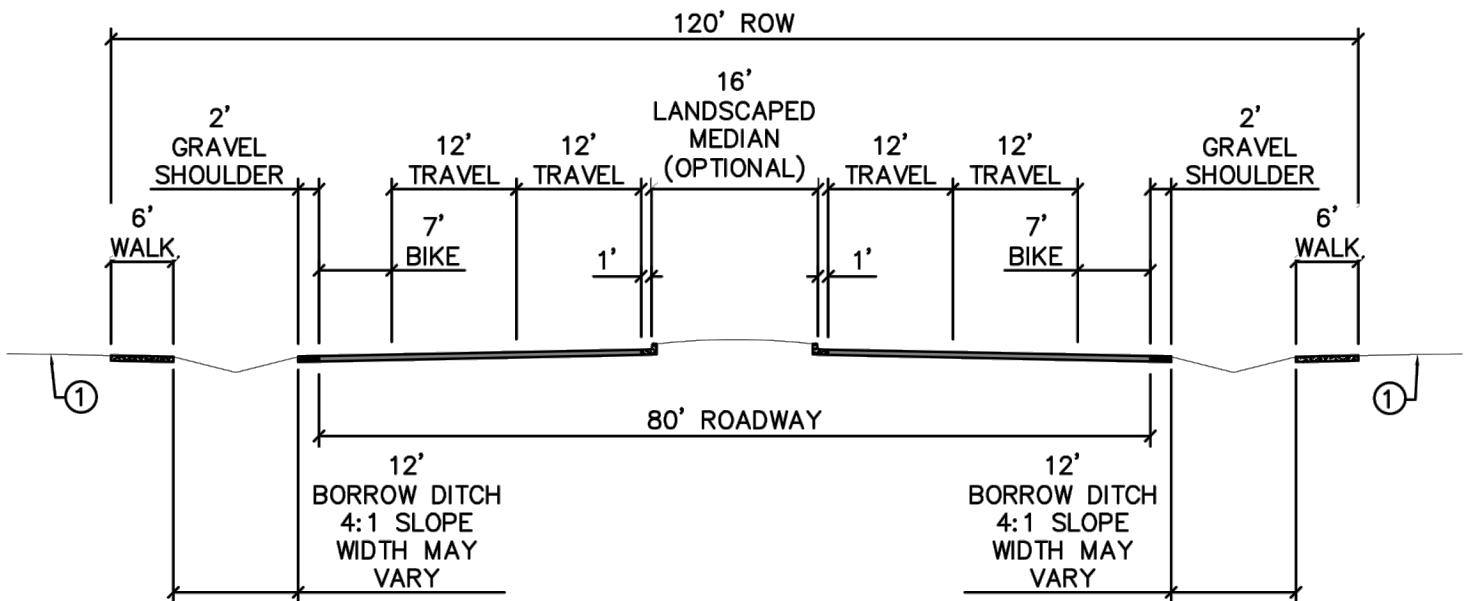
NOTES:

- ① 15' UTILITY EASEMENT TO BE DEDICATED ON EACH SIDE TO THE RIGHT OF WAY (TYP)
- ② VERTICAL CURB AND GUTTER (TYP)

MINOR ARTERIAL (4-LANE) SUBURBAN CORRIDOR STREET SECTION



MINOR ARTERIAL (4-LANE) RURAL CORRIDOR STREET SECTION

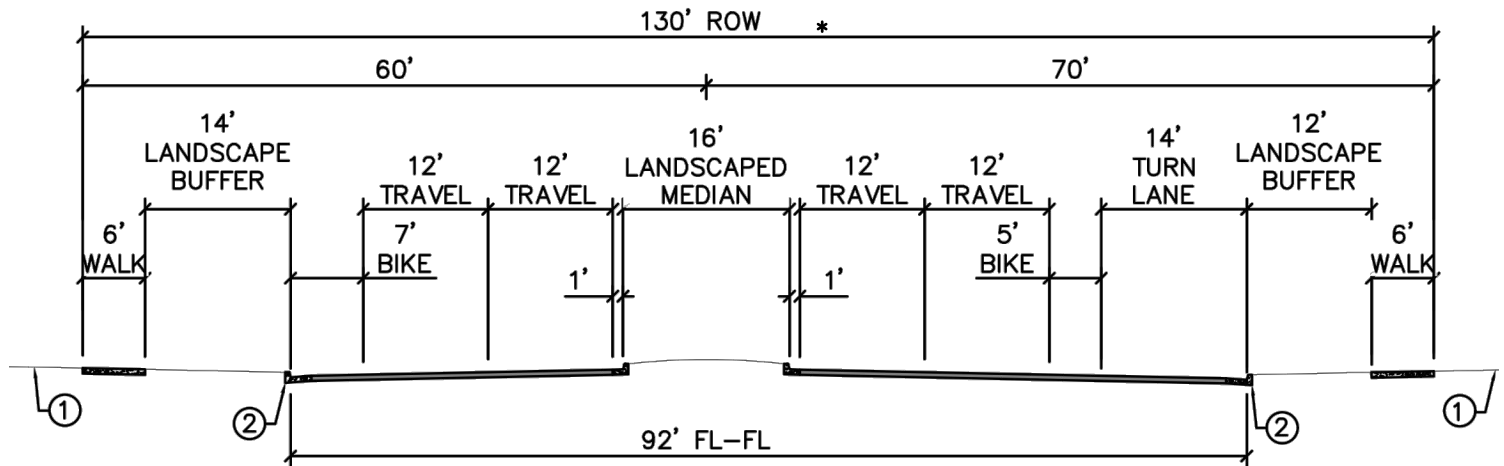


NOTES:

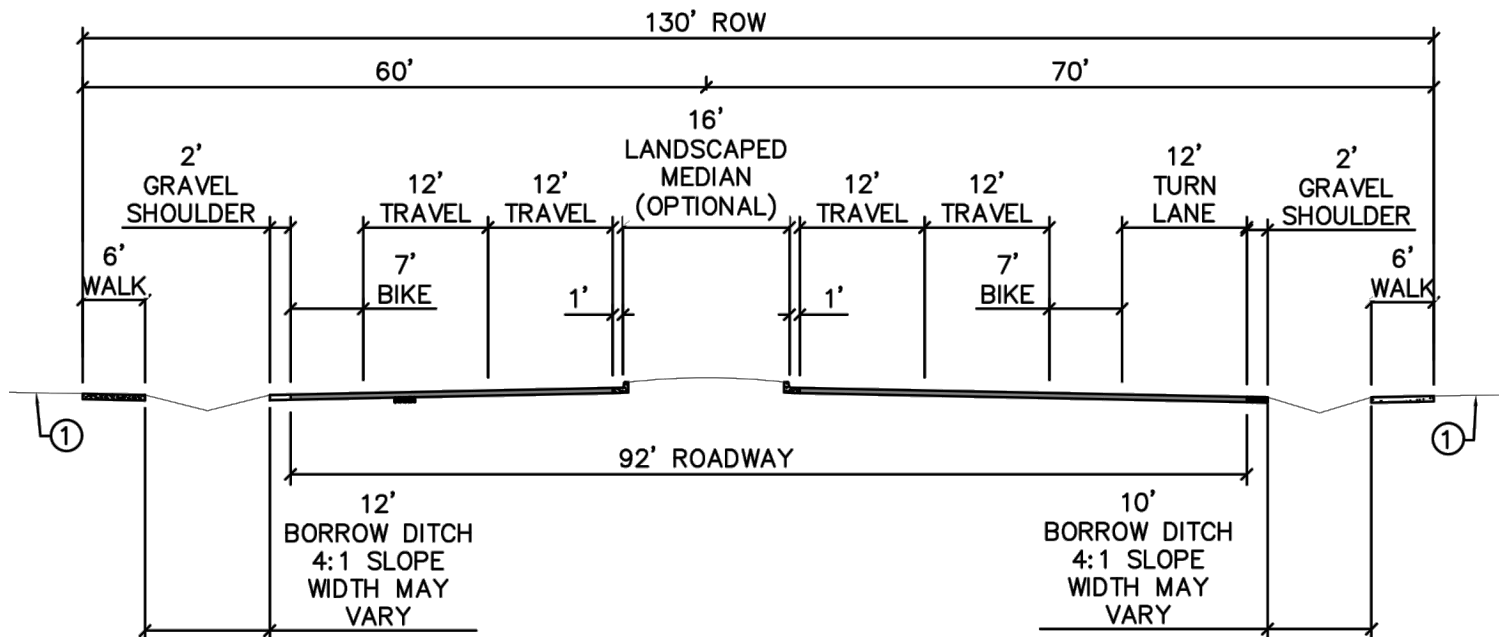
- ① 15' UTILITY EASEMENT TO BE DEDICATED ON EACH SIDE TO THE RIGHT OF WAY (TYP)
- ② VERTICAL CURB AND GUTTER (TYP)

*10' ADDITIONAL ROW IS REQUIRED WHERE RIGHT TURN LANES ARE WARRANTED. ADJACENT LANDSCAPE BUFFER IS REDUCED TO 10'.

MINOR ARTERIAL (4-LANE) SUBURBAN CORRIDOR STREET SECTION WITH RIGHT TURN LANE



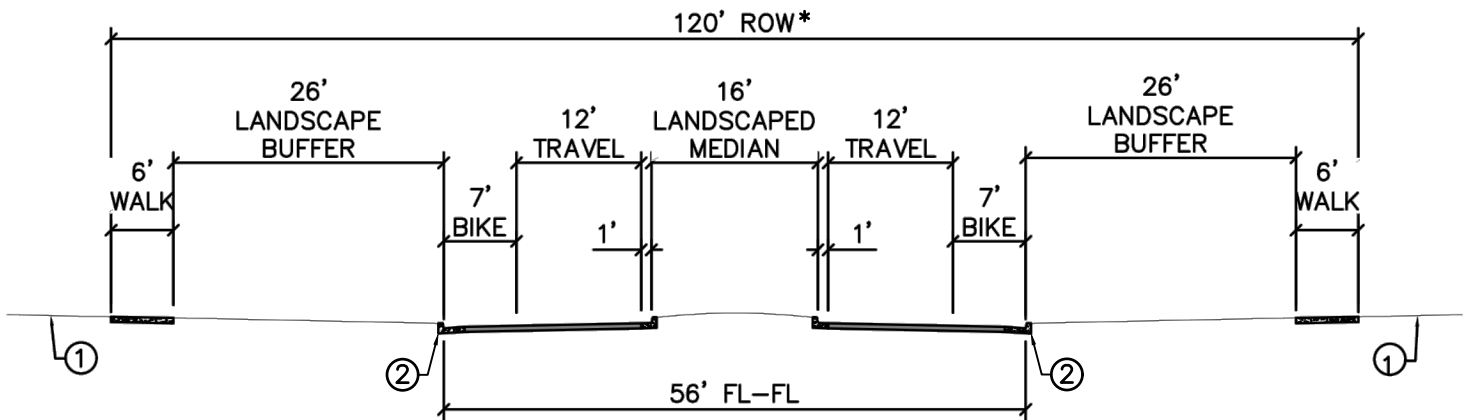
MINOR ARTERIAL (4-LANE) RURAL CORRIDOR STREET SECTION WITH RIGHT TURN LANE



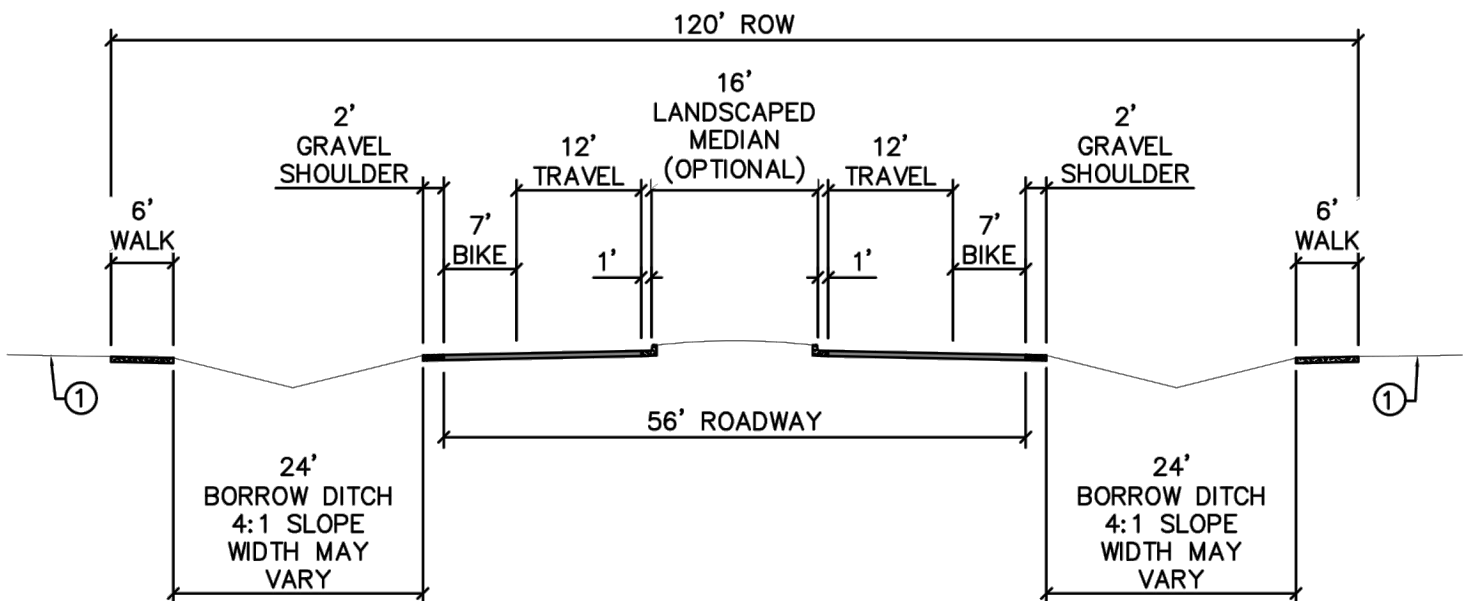
NOTES:

- ① 15' UTILITY EASEMENT TO BE DEDICATED ON EACH SIDE TO THE RIGHT OF WAY (TYP)
 - ② VERTICAL CURB AND GUTTER (TYP)
- *10' ADDITIONAL ROW IS REQUIRED WHERE RIGHT TURN LANES ARE WARRANTED. ADJACENT LANDSCAPE BUFFER IS REDUCED TO 10'.

MINOR ARTERIAL (2-LANE) SUBURBAN CORRIDOR STREET SECTION



MINOR ARTERIAL (2-LANE) RURAL CORRIDOR STREET SECTION

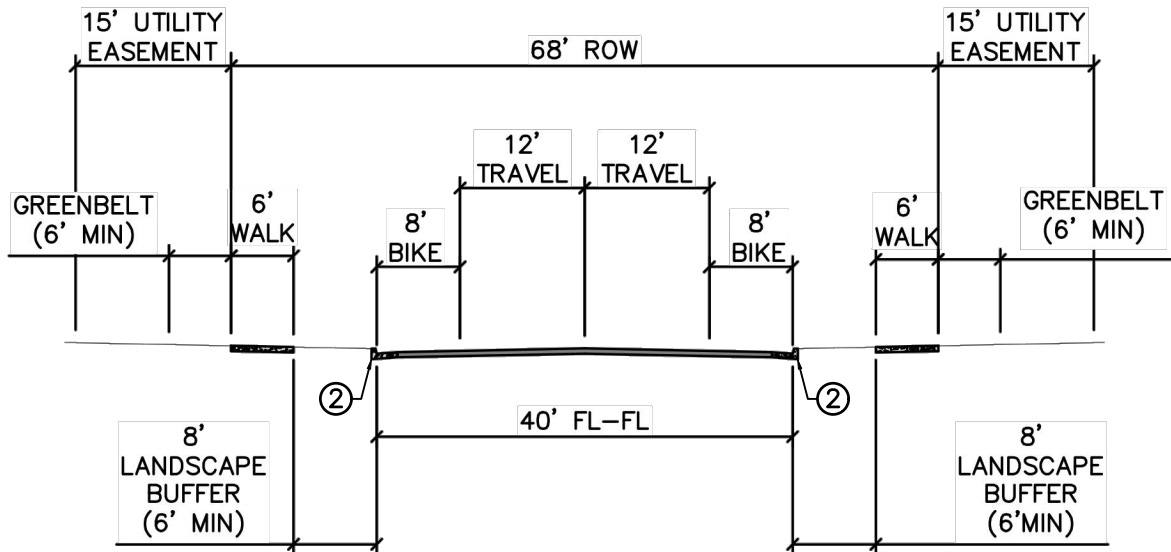


NOTES:

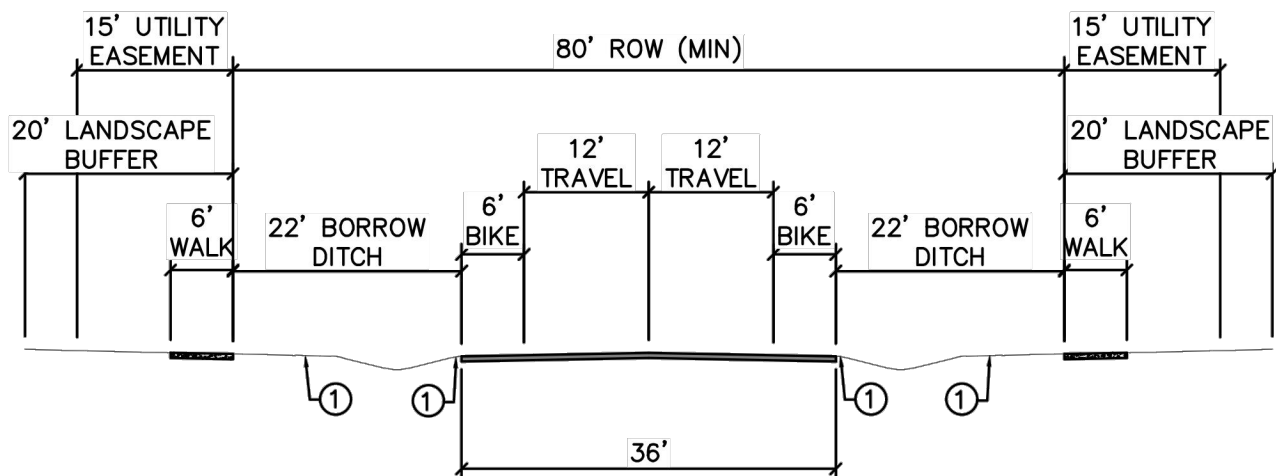
- ① 15' UTILITY EASEMENT TO BE DEDICATED ON EACH SIDE TO THE RIGHT OF WAY (TYP)
- ② VERTICAL CURB AND GUTTER (TYP)

*10' ADDITIONAL ROW IS REQUIRED WHERE RIGHT TURN LANES ARE WARRANTED. ADJACENT LANDSCAPE BUFFER IS REDUCED TO 10'.

COLLECTOR SUBURBAN CORRIDOR STREET SECTION



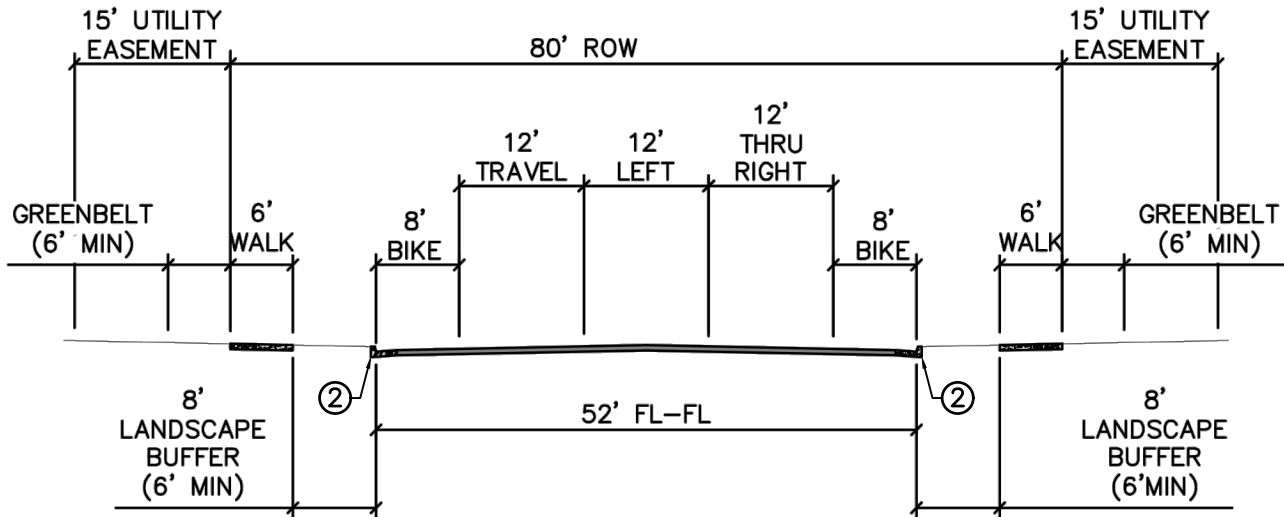
COLLECTOR RURAL CORRIDOR STREET SECTION



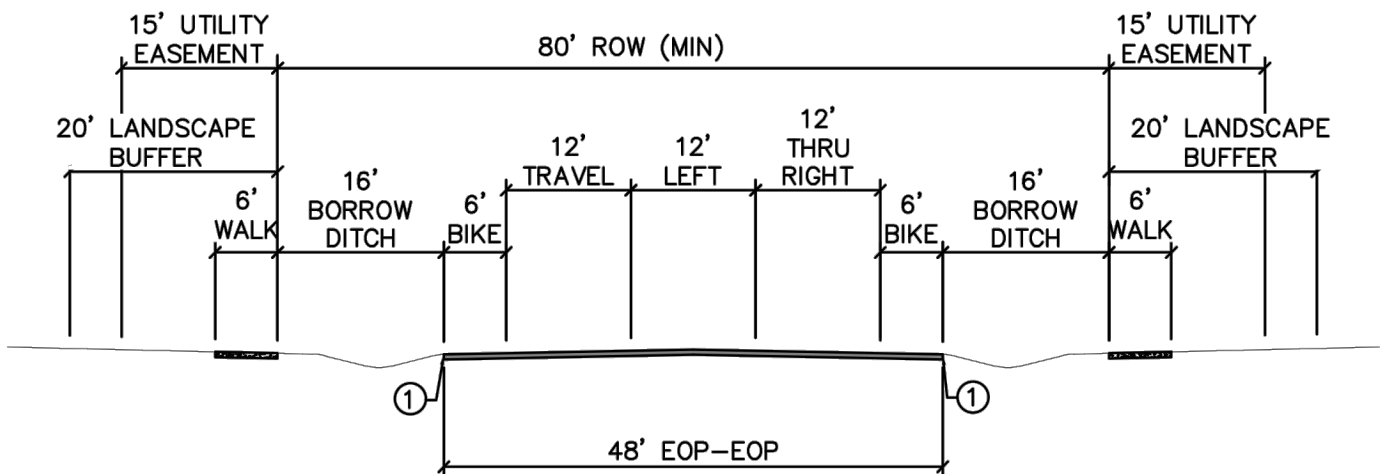
NOTES:

- ① 3' GRAVEL SHOULDER (TYP)
- ② VERTICAL CURB AND GUTTER (TYP)

COLLECTOR SUBURBAN CORRIDOR STREET SECTION AT ARTERIAL OR COLLECTOR INTERSECTION



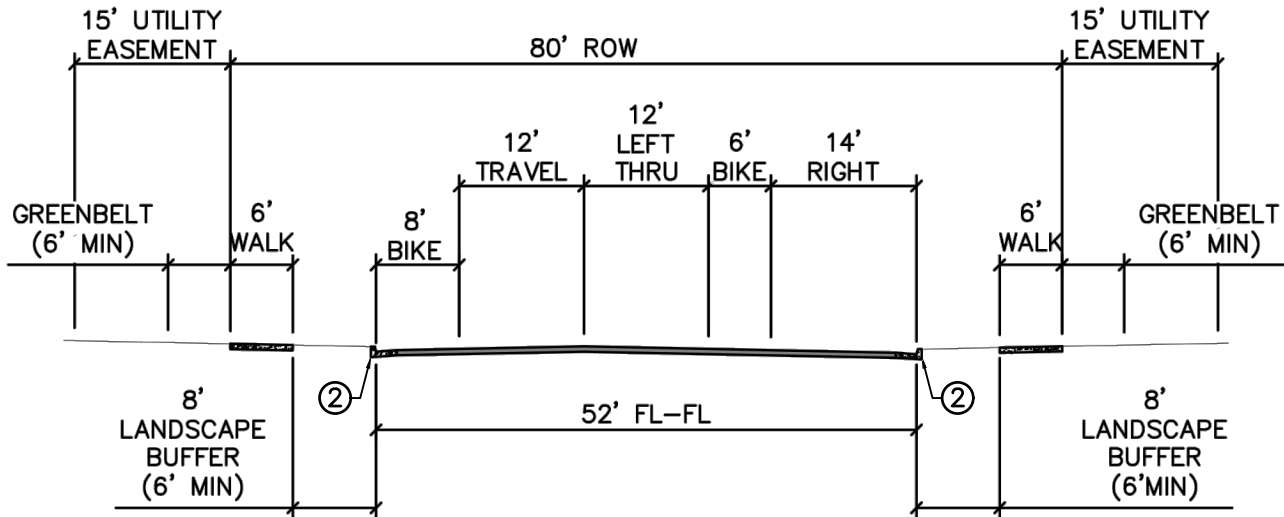
COLLECTOR RURAL CORRIDOR STREET SECTION AT ARTERIAL OR COLLECTOR INTERSECTION



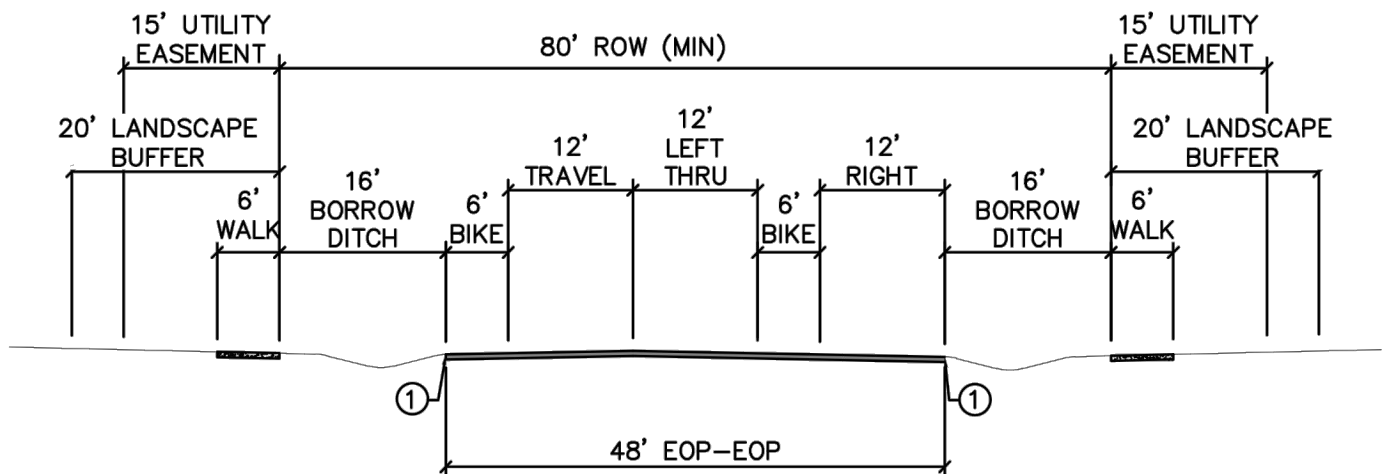
NOTES:

- ① 3' GRAVEL SHOULDER (TYP)
- ② VERTICAL CURB AND GUTTER (TYP)

COLLECTOR SUBURBAN CORRIDOR STREET SECTION AT ARTERIAL OR COLLECTOR INTERSECTION



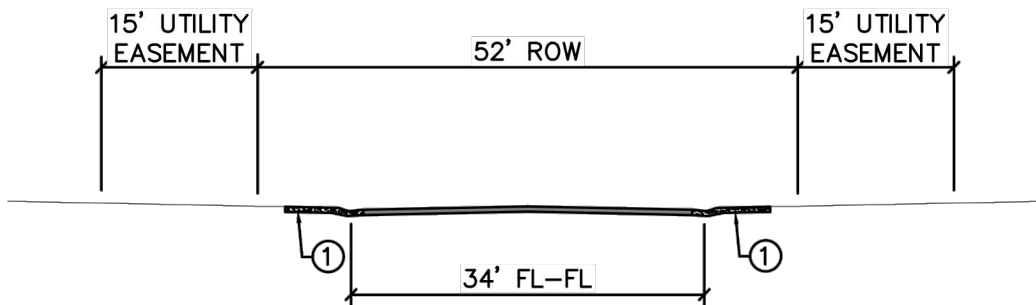
COLLECTOR RURAL CORRIDOR STREET SECTION AT ARTERIAL OR COLLECTOR INTERSECTION



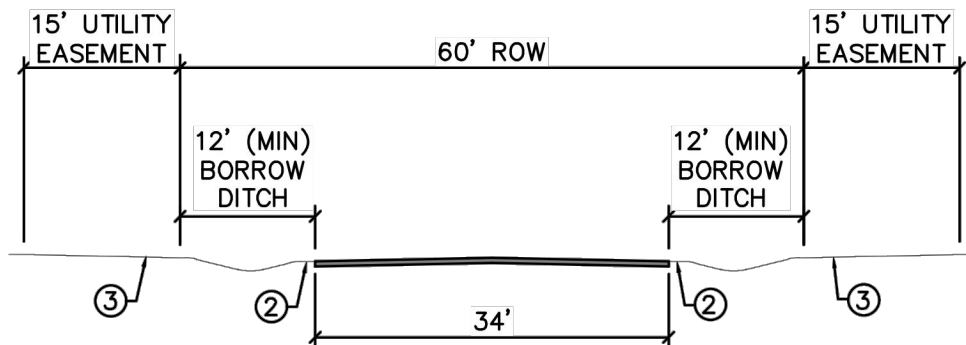
NOTES:

- ① 3' GRAVEL SHOULDER (TYP)
- ② VERTICAL CURB AND GUTTER (TYP)

LOCAL STREET SUBURBAN CORRIDOR STREET SECTION (ATTACHED SIDEWALK)



LOCAL STREET RURAL CORRIDOR STREET SECTION (WITH BORROW DITCH)



NOTES:

- ① DRIVE OVER CURB AND GUTTER WITH 5' ATTACHED SIDEWALK (TYP)
- ② 2' SHOULDER (TYP)
- ③ NATIVE DROUGHT TOLERANT SEED

STREET STANDARDS AND ACCESS CONTROL

In order to preserve the functional integrity, safety, and capacity of roadways in Severance, it is necessary to establish general access control policy guidelines. As previously mentioned, each classification of roadway represents a compromise between the level of mobility (use by through traffic) and access.

The road corridors are a critical part of the Town's transportation system. Traffic demands are projected to increase and opportunities for additional right-of-way are limited. Access management is a vital tool for preserving capacity, maintaining traffic flow, increasing public safety, reducing vehicular delay, and improving the appearance and quality of the corridors. Access management is the systematic control of the location, spacing, design and operation of driveways and street connections to the roadways. This includes the design of medians, turn lanes and traffic signals to benefit overall public mobility and balance the needs of all users.

Table 2 summarizes the general parameters to be applied to each functional classification under Severance's jurisdiction. Table 3 summarizes the recommended street standard characteristics and access control policy guidelines. The information on Table 2 and Table 3 was collected from the City of Greeley and the *State Highway Access Code*. The information was then updated to better reflect the needs of the Town of Severance.

Severance should implement these basic access control guidelines through a formal review and approval process which is based on preparation of a traffic impact study for each development by a qualified traffic engineer. This formal process should give Severance staff the ability to control access along the Town's arterials during the development review and approval process. Developers will be required to coordinate their access with that of nearby properties so that capacity and safety are maximized while still accommodating growth. It should be noted that existing roads may not meet current design standards depending on when the road was constructed and what standards were in place at the time.

Turning and through traffic can be separated through the use of left and right turn lanes and two-way left turn lanes. Turning lanes should include adequate provision for acceleration or deceleration to minimize friction to through traffic from turning vehicles which are traveling at slower speeds. This Transportation Plan includes updated guidance about requirements for turning lanes including the necessary volume warrants and associated geometrics.

Table 2.1: Suburban General Parameters

Street Classification	Major Arterial 4 Lanes	Minor Arterial 4 Lanes	Minor Arterial 2 Lanes	Collector 2 Lanes	Local Residential
Right-of-Way Width	140'	120'	120'	68'	52'
Roadway Width*	80'	80'	56'	40'	34'
Width at Intersections*	104'	104'	56'	40'	34'
Number of Travel Lanes	4	4	2	2	2
Travel Lane Width	12'	12'	12'	12'	10'
Designated Bike Lanes	Yes	Yes	Yes	Yes	No
Bike Lane Width	5'	5'	5'	6'	n/a
Parking Lane Width	None	None	None	None	7'
Design ADT	20,000	15,000	10,000	3,500	1,500
Design Speed (mph)	55	50	50	35	30
Posted Speed (mph)	45	40	40	30	25
Continuity	5 miles	3 miles	3 miles	1 mile	1 mile
Turn Lanes**	Required	Required	Required	Required	No

*Flowline to flowline

**Left-turn lanes are always required; right-turn lanes are required if TIS indicates need.

See standard details for performance options.

Table 2.2: Rural General Parameters

Street Classification	Major Arterial 4 Lanes	Minor Arterial 4 Lanes	Minor Arterial 2 Lanes	Collector 2 Lanes	Local Residential
Right-of-Way Width	140'	120'	120'	80'	60'
Roadway Width*	80'	80'	56'	36'	34'
Width at Intersections*	104'	104'	56'	36'	34'
Number of Travel Lanes	4	4	2	2	2
Travel Lane Width	12'	12'	12'	12'	10'
Designated Bike Lanes	Yes	Yes	Yes	Yes	No
Bike Lane Width	7'	7'	7'	6'	n/a
Parking Lane Width	None	None	None	None	7'
Design ADT	20,000	15,000	10,000	3,500	1,500
Design Speed (mph)	55	50	50	35	30
Posted Speed (mph)	45	40	40	30	25
Continuity	5 miles	3 miles	3 miles	1 mile	1 mile
Turn Lanes**	Required	Required	Required	Required	No

*Flowline to flowline

**Left-turn lanes are always required; right-turn lanes are required if TIS indicates need.

See standard details for performance options.

Table 3: Technical Design Criteria

Design Element		Arterial				Collector
		Major 4 Lane		Minor 2/4 Lane		
Overall Design Parameters						
Design Speed (mph)		55		50		35
Posted Speed (mph)		45		40		30
Stopping Sight Distance		495'		425'		250'
Horizontal Alignment						
Minimum Centerline Radius		1530'		1200'		450'
Maximum Superelevation		5%		5%		n/a
Minimum Tangent between Curves or at Intersection ¹		300'		300'		150'
Vertical Alignment						
Maximum Centerline Grade		5%		5%		5%
Minimum Gutter Flowline Grades ²		0.5%		0.5%		0.5%
Intersection Design						
Minimum sight distance at driveways & intersections ³		665'		610'		445'
Raised Median		Yes	No	Yes	No	
Minimum Distance between Intersections	Signalized	2640'		1320'		n/a
	Unsignalized	n/a	1320'	1320'	425' ⁴	330'
Minimum Distance between Driveways		n/a	350' ⁵	660'	300' ^{****}	200'
Driveway Configuration		Radial curb return		Radial curb return		Curb cut or radial

¹Intersection Angles shall be perpendicular (90°) or a maximum of 10° with approval of Town Engineer

²0.6% Minimum gutter flowline grade for crossspans, cul-de-sacs, eyebrows, and curb return

³Left-turn from stop sign. Distances in table supersede COG Figure 1.07.1

⁴3/4 Movement only per approval of traffic engineer

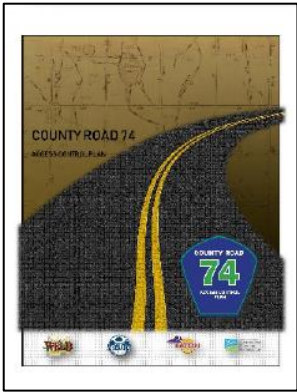
⁵Right-in/right-out only per approval of traffic engineer

Note: Deviations require a traffic study and analysis by a licensed engineer and must be approved by the Town Traffic Engineer

State facilities are under the jurisdiction of CDOT and follow the State Highway Access Code. Some state highways, such as SH 392, have their own Access Control Plan to provide more specific guidance and planning. Other ACPs are discussed below.

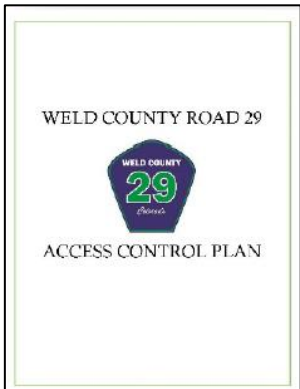
WCR 74 ACCESS CONTROL PLAN

The WCR 74 ACP was developed in cooperation with Weld County, Town of Eaton and the Town of Severance. The corridor extends from SH 257 to the west, to County Road 39 to the east. The primary goal of the plan is to preserve the functional integrity of WCR 74 (E. Harmony Road) as development occurs on the corridor. The plan was adopted by the Weld County Commissioners in September 2020. The Town should utilize this ACP when reviewing and approving new and modified access points along WCR 74 (E. Harmony Road).



WCR 29 ACCESS CONTROL PLAN

The WCR 29 ACP was developed in cooperation with Weld County, Town of Eaton, Town of Ault, Town of Pierce, Town of Nunn, and the Town of Severance. The corridor extends from SH 392 to the south, to WCR 100 to the north. The plan was adopted by the Weld County Commissioners in 2018. The plan was developed in order to assist in making improvements to the corridor, and to improve corridor safety. The Town should utilize this ACP when reviewing and approving new and modified access points.



DECELERATION LANES AND TURNING LANES

A traffic impact study, along with the Town Engineer, should determine the need for deceleration lanes and turning lanes. Volume thresholds for left and right turn lanes are shown in Table 4 and Table 5, respectively.

Table 4: Left Turn Lane Volume Thresholds

Speed (mph)	Vehicles per Hour
30	25
35	25
40	25
45	10
50	10

Left turn lanes required on arterials.

Table 5: Right Turn Lane Volume Thresholds

Speed (mph)	Vehicles per Hour	
	2-Lane	4-Lane
30	40-120	40-90
35	40-120	40-90
40	40-60	40-50
45	40-60	40-50
50	25	25

The required deceleration lengths excluding stored vehicles are based on the design speed for the Arterial and are shown in Table 6.

Table 6: Deceleration Lengths

Design Speed (mph)	30	40	45	50	55
Decel. Length (ft)	230	330	430	550	680

These lengths include the taper length. Redirect taper and taper bay design ratios are shown in Table 7. On many arterials, it is not possible to provide the full deceleration length due to existing conditions. In such instances, it will be necessary to coordinate the design with the Town Engineer.

Table 7: Taper Ratios

Speed (mph)	Redirect Taper Ratio*	Taper Bay Design Ratio**
30	15:1	10:1
35	20.5:1	12:1
40	27:1	13.5:1
45	45:1	15:1
50	50:1	17:1

*Ratio= $s^2/60$ for speeds ≤ 40 mph; Ratio= s for speeds ≥ 45 mph

**Ratio= $s/3$; taper ratios of 8:1 can be used for tangent bay tapers in constrained locations

On deceleration lanes where it is necessary to store stopped vehicles (i.e. traffic signals, stop conditions and left turn lanes), additional stacking length should be provided to accommodate the average number of vehicles anticipated at the peak hour, per signal cycle, if indicated from the most recent traffic impact analysis. In such cases, the “storage length” should be added to the “deceleration length” to arrive at the total length.

The recommended storage lengths for non-signalized intersections are shown in Table 8. The storage length is based on the short range horizon peak hour traffic or the full build-out of development, whichever is greater.

Table 8: Storage Lengths

Turning Vehicles per Hour	30	60	100	200	300
Storage Length (ft)	25	50	100	175	250

STREET MARKINGS

All street markings should be in compliance with the current Manual of Uniformed Traffic Control Devices Standards. Town and development projects should use the current version of the CDOT M&S Standards, Standard Plan No. S-627-1 “Typical Pavement Markings” for guidance when preparing roadway plans.

ISSUE AREAS

JR Engineering assisted with the analysis of issue areas throughout the Town. This work was done through a combination of analysis of crash records, existing and future traffic volumes, traffic operations, speed limits, Town Staff input, and public input. It is intended for the recommended improvements in this section to complement the Roadway Plan.

ROADWAY LEVEL OF SERVICE

Level of Service (LOS) is a measure of congestion delay. It can be thought of as a grading scale, where LOS A is excellent and implies high levels of mobility and ease of maneuverability. LOS F represents failure and indicates that the road is experiencing heavy traffic volumes, significant congestion, and stop-and-go conditions throughout many times of the day. LOS A through LOS D are considered acceptable. The Town should continue to ensure that roadways and intersections operate at LOS A through LOS D. LOS is commonly measured for the following types of transportation facilities:

- Roadway segments between intersections
- Signalized intersections
- Stop-controlled intersections
- Roundabouts

LOS for signalized intersections is a common method used to measure the performance of the intersection. The LOS is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometry, traffic, and

incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions: in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-minute analysis period. Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the volume to capacity (v/c) ratio for the lane group.

Level of service standards are not a guarantee of actual system performance at all locations at all times. They assist in identifying appropriate roadway improvement needs but must be balanced with other considerations such as funding availability, environmental issues, and other constraints. The LOS standards can be relaxed during the following conditions:

- As congestion reaches high levels in a specific corridor or intersection
- Minor street approaches to arterials with coordinated traffic signals

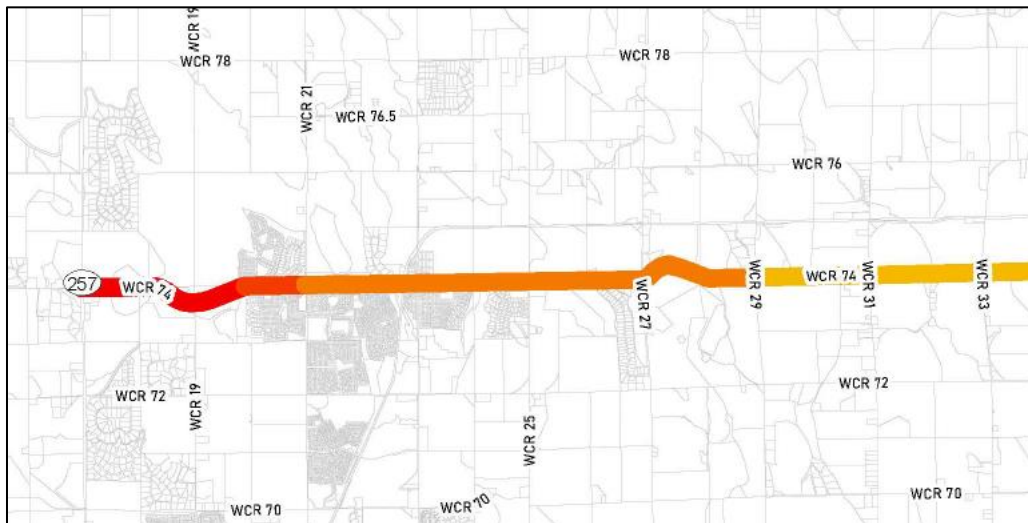
The Town should review and approve the above conditions on a case-by-case basis.

Some common performance measures and operating characteristics related to level of service are shown in Table 9. Lane warrants and roadway functional classifications for the Roadway Plan are determined based on traffic volume forecasts and level-of-service capacity thresholds.

Table 9: Level of Service Characteristics

	Level of Service					
	A	B	C	D	E	F
Driver Comfort	High	High	Some Tension	Growing Tension	Uncomfortable	Distressed
Average Travel Speed	Speed Limit	Close to Speed Limit	Close to Speed Limit	Some Slowing	Significantly Slower than Speed Limit	Significantly Slower than Speed Limit
Maneuverability	Almost Completely Unimpeded	Only Slightly Restricted	Somewhat Restricted	Noticeably Limited	Extremely Unstable	Almost None
Intersection Delay (Control Delay per Vehicle, sec)	<10	>10 and <20	>20 and <35	>35 and <55	>55 and <80	>80
Arterial Volume/Capacity Ratio	<0.6	0.6-0.7	0.7-0.8	0.8-0.9	0.9-1.0	>1.0

With continued traffic growth, the operational analysis and regional plans expect the LOS to degrade on portions of the major arterial network. As shown below, portions of E. Harmony Road are expected to operate at LOS F by the year 2045 with the existing lane geometry. Based on this, several arterial roads are recommended to be widened to four lanes by the Year 2040.



LOS on E. Harmony Road in Year 2045

Source: *County Road 74 Access Control Plan*

ARTERIAL WIDENINGS

With continued traffic growth, the operational analysis and regional plans expect the LOS to degrade on portions of the major arterial network. JR recommends widening the following arterial roads from two to four lanes in the short-term to mid-term timeframe:

- E. Harmony Road from SH 257 to Mahogany Way/Immigrant Trail
- E. Harmony Road from 3rd Street to WCR 27
- WCR 19 from WCR 70 to E. Harmony Rd
- WCR 23 from SH 392 to Harvest Moon Drive

Adjacent development should participate in this process by providing necessary improvements along their property.

There are two roadway segments in Severance where expanded roadway cross-sections are needed to serve the travel demand forecasts, but existing physical and social constraints prohibit such expansion. These two segments are:

- E. Harmony Road through downtown
- WCR 23 through downtown

To relieve traffic in downtown, the Town should continue to implement its Roadway Plan to develop a more complete grid of generally section-spaced arterials throughout the Town.

E. Harmony Road and WCR 23 Corridor Plans

It is understood that E. Harmony Road and WCR 23 are significant corridors for both the Town and regional connectivity. The recommended next step is to prepare a corridor plan for both of the roadway corridors.

E. HARMONY ROAD AND 1ST STREET INTERSECTION

The intersection of E. Harmony Road and 1st Street is identified as an issue for truck traffic. The existing lane configuration and curb bulb-outs result in a narrow turn radius which is difficult for trucks and can result in safety hazards and traffic delays. The Town should explore curb realignment to provide improved turn radii for trucks. This will likely require a more thorough engineering study to establish detailed specifications.

PREFERRED COMMERCIAL TRUCK ROUTES

Although commercial truck restrictions are primarily administered at the county level, the Town recognizes that it receives a significant amount of regional commercial truck traffic passing through the Town. Figure 21 illustrates the Town's preferred future truck routes as a resource for commercial trucks to use to travel around the GMA. As the town grows, these facilities will remain as appropriate routes for commercial trucks when considering design and speed limits, while other roadways closer to the Town Core will be programmed to better accommodate local travel and alternative modes, potentially making them less attractive for commercial truck use.

DOWNTOWN PARKING

The Town provides parking for its downtown patrons with on-street, parallel parking spaces along E. Harmony Road and WCR 23. The on-street parking spaces on E. Harmony Road extend from Railroad Avenue to 3rd Street. The on-street parking spaces on WCR 23 extend from 300 feet south of E. Harmony Road to 1st Avenue.

The Town was interested in converting the existing parallel parking to angled parking. JR Engineering reviewed, and due to the proximity of existing buildings to the road, the buildings would require removal in order to install the angled parking.

Based on site observations, the existing parking supply in downtown is assumed to be sufficient. As development continues in downtown, the Town would need to complete a parking study to determine if the existing parking supply is sufficient for future scenarios. The parking study would measure occupancy throughout the day and should review the need for off-street parking.

CDOT INTERSECTIONS

There are four major intersections within the GMA that are under the purview of CDOT. They include the following:

- E. Harmony Road and SH 257
- WCR 23 and SH 392
- WCR 23 and SH 14
- SH 257 and SH 14

Concept designs for the ultimate lane geometry are included in **Appendix E**.

INTERSECTION CONTROL

The *Manual on Uniform Traffic Control Devices* (MUTCD, 2009 Edition) identifies nine warrants criteria for the installation of traffic control signals. The MUTCD specifies consistent standards for traffic signals and other traffic control devices and is used by traffic engineers almost universally throughout the country. At least one of the MUTCD signal warrants must be met to justify a signal. For purposes of evaluating the need for future traffic signals in this plan, Warrant 3 – Peak Hour, was applied. This warrant looks at the peak hour traffic volumes on the major roadway and the higher volume on the minor roadway to establish signal need.

With continued traffic growth, the operational analysis indicates that the LOS will degrade at several intersections throughout Town. JR recommends traffic signals at the following intersections:

- E. Harmony Road and WCR 19
- E. Harmony Road and WCR 23
- SH 392 and WCR 23

JR recommends left turn lanes and traffic signals at the following intersections:

- WCR 72 and WCR 21
- WCR 70 and WCR 21

Based on input from Town Staff, the following intersections are good candidates for roundabouts:

- WCR 72 and WCR 23
- WCR 70 and WCR 23

The timing of these improvements is shown in Table 10 to Table 12.

The preliminary traffic operations analysis shows that roundabouts are expected to operate well. If the Town proceeds with a roundabout, a study should be conducted to determine if the roundabout can be single lane or multi lane.

Figure 22 shows the intersections in which a traffic signal could be warranted by the year 2040. These potential signal warrants are noted as “planned” in Figure 22 and are only for planning purposes and do not represent a guarantee of signalization at any specific time if at all. There are several other signal warrants that should be reviewed with observed data instead of the forecasted data applied for this analysis. Warrants may change based on development trends, roadway improvements, and other factors.

Due to ever-changing traffic patterns in the area, signal timing optimization should be performed on an annual basis to ensure efficient traffic flow and use of the existing facilities.

INTERSECTION CONTROL ANALYSIS

At intersections with planned traffic signals, an Intersection Control Analysis (ICA) should be performed during the conceptual design. The ICA would involve an analysis of a roundabout and a traffic signal. The ICA should include a 5-step process, which would screen and evaluate alternatives to determine the best possible intersection type and design. The steps include the following:

- Provide Background and Project Needs
- Review Feasibility
- Perform Analysis
- Perform Benefit/Cost Analysis
- Select Preferred Alternative

TRAFFIC SIGNALS

All traffic signals should be in compliance with the current Manual of Uniform Traffic Control Devices Standards. It is recommended that the Town maintain current standard drawings and construction specifications for traffic signals which can be furnished to developers upon request. Before materials are ordered, the plans should be approved by the Town Engineer.

Town and development projects should use the current version of the CDOT Standard Specifications for Road and Bridge Construction, Section 614 “Traffic Control Devices” for guidance when preparing traffic signal plans. Town and development projects should also use the current version of the CDOT M&S Standards for guidance when preparing traffic signal plans. Some equipment shall conform to Town standards, such as street name signs and vehicle detection cameras.

It is recommended that crosspans not be installed at signalized intersections. Vehicles frequently travel at higher speeds through signalized intersections, and crosspans create safety issues with vehicles scraping the pavement.

As more traffic signals are installed, the Town should consider the following intelligent transportation systems (ITS):

- Traffic signal interconnect through the means of fiber optic cable or wireless technology
- Closed-circuit television cameras (CCTV)
- Traffic management center (TMC)

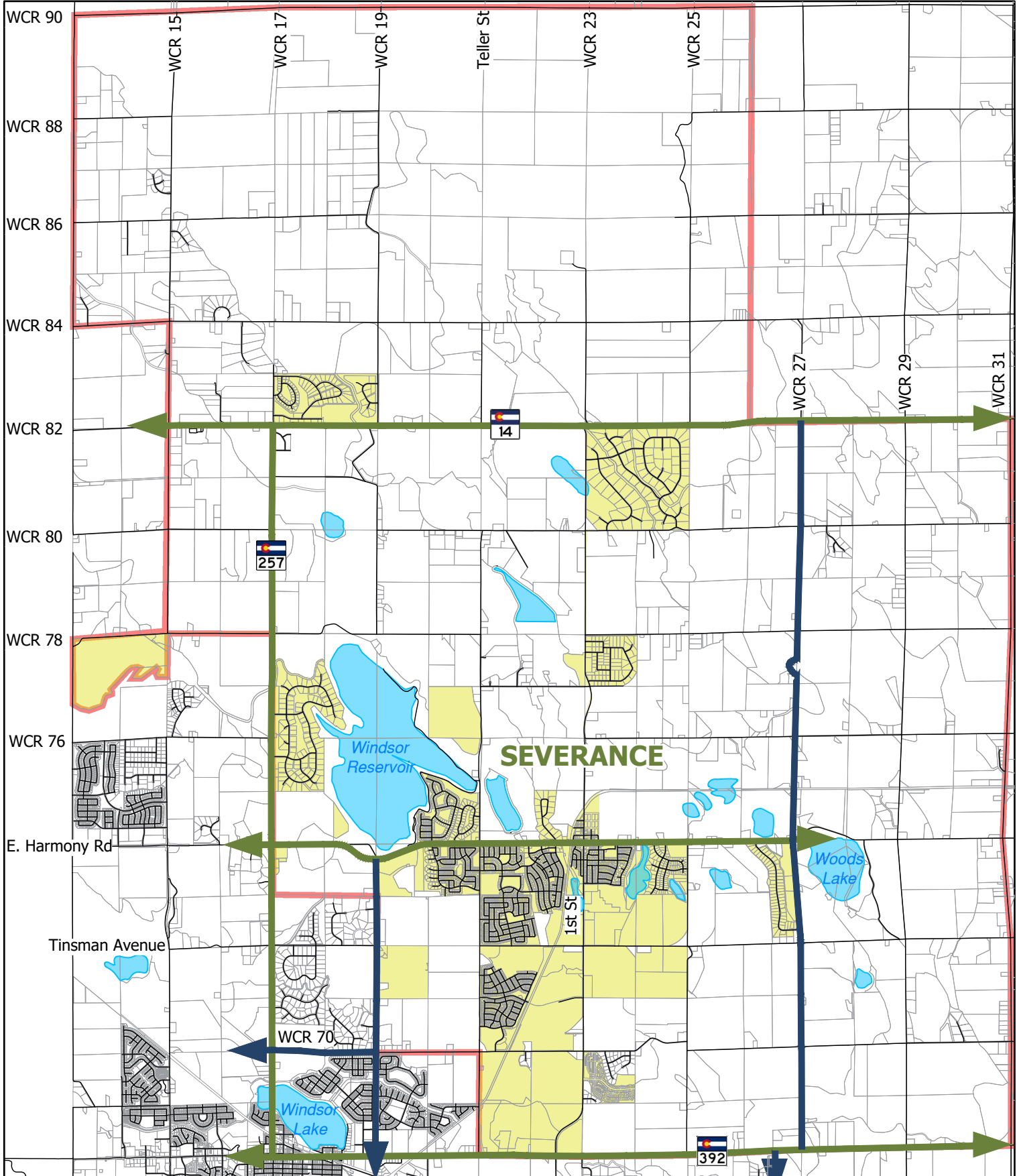
TMCs allow traffic personnel the ability to monitor and manage traffic congestion. Traffic staff can view the numerous closed-circuit traffic cameras, communicate with traffic signals, alter signal timing plans and perform various maintenance duties on the signals from a TMC using remote communication capabilities.

TRAFFIC CALMING ON COLLECTORS

The Town's collector streets have wide cross sections, which are 40 feet flowline to flowline. The existing collector streets, such as Tailholt Avenue, are also not striped. It was previously discussed in this plan that Tailholt Avenue has issues with speeding. It is typical for speeding traffic to occur on street with wide cross section and no striping. The Town should consider the following options:

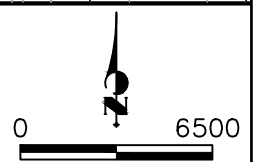
- Conduct a roadway diet by striping narrow travel lanes and buffered bike lanes.
- Install radar speed signage.
- Conduct targeted speed enforcement at locations with high pedestrian volumes or a history of safety problems.
- Focus some attention on performing regular safety evaluation of completed projects.

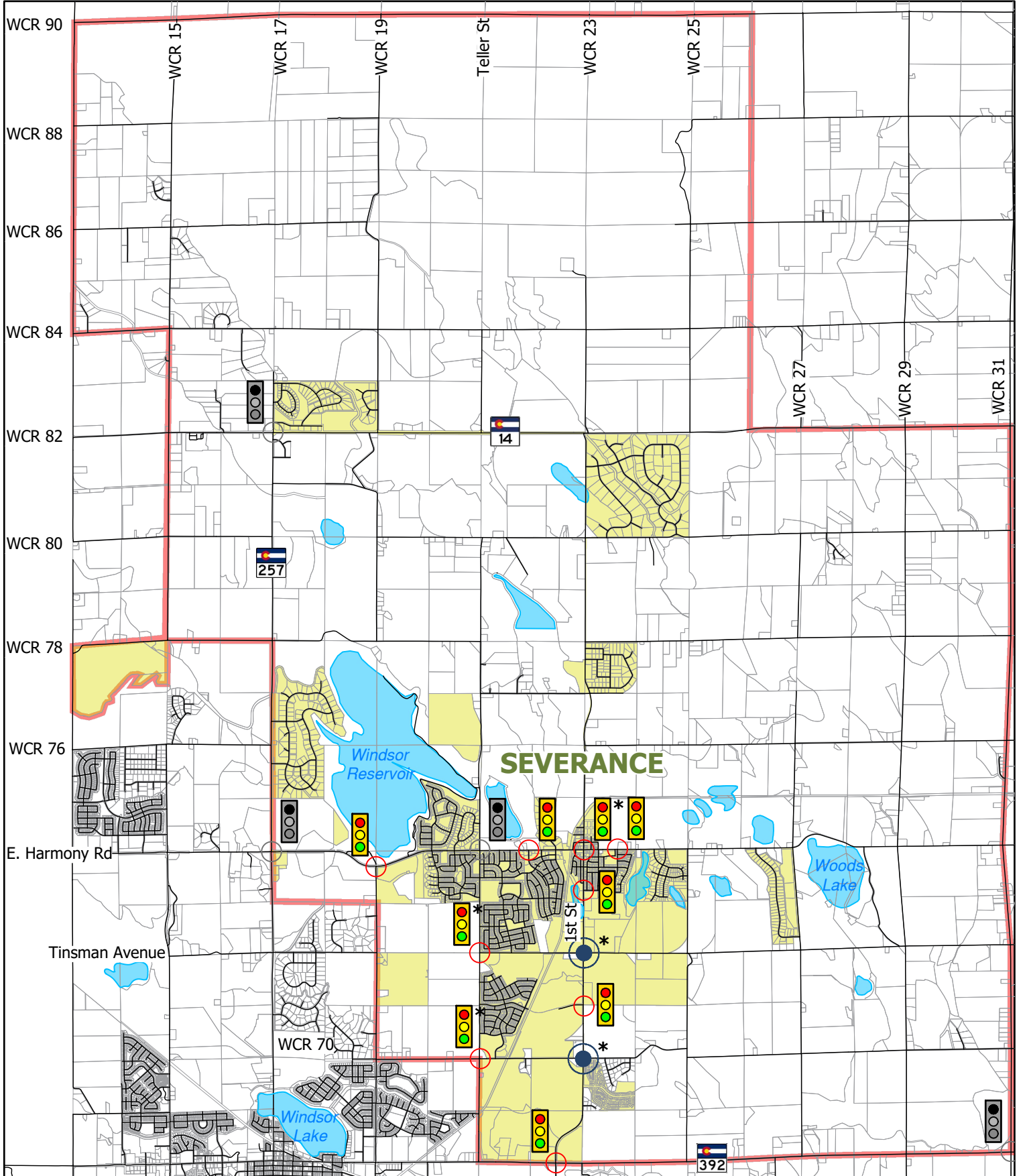
If a roadway diet is selected, the Town should conduct a pilot project on one or two collector streets. Speed data should be collected before and after the project to ensure vehicle speeds are being reduced.



LEGEND

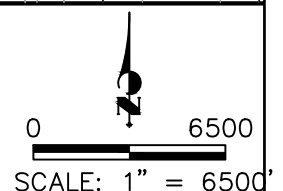
- Growth Management Area
- Severance Town Limits
- Existing Commercial Truck Routes
- Proposed Commercial Truck Routes





LEGEND

- Growth Management Area
- Severance Town Limits
- Existing Signal
- Planned Signal
- Planned Roundabout
- * Intersection control analysis required



PEDESTRIAN AND BIKE NETWORK

The Town of Severance is committed to a roadway system that includes accommodations for pedestrian and bicycle facilities for new and improved roadways.

Specific areas of the community and roads have been determined for specific improvements, such as road widening and crosswalk improvements. Some of the notable areas are listed below.

The pedestrian and bicycle plan is shown in Figure 23, and the bicycle lanes plan is shown in Figure 24.

RANGE VIEW ELEMENTARY SCHOOL

Pedestrian and automobile volumes are high at the school during morning and afternoon drop-off times. Due to these high volumes, the Town and School should consider the incorporation of additional crosswalks and signage to further highlight the crosswalk locations for pedestrians and automobile drivers. Recommended improvements were submitted to the Town for review in October 2020 and are included in **Appendix F**.

The Town should also consider a Safe Routes to School project, which would improve pedestrian and bicycle connectivity to the school.

1ST STREET

As the Town looks to widen 1st Street, consideration should be given for the inclusion of bicycle and pedestrian facilities. This may include on-street bicycle lanes or multi-use trails that are separated from the road by tree lawns. Crosswalks should be considered for safe pedestrian connection to Lakeview Park at the intersection of 1st Street and Harvest Moon Drive. Additional pedestrian crosswalks should be considered along 1st Street to provide safe connections to the new Community Park and the High School.

TAILHOLT AVENUE

The relatively new road corridor has a wide road section. This road width provides an opportunity for consideration of on-street bicycle lanes and pedestrian crossing enhancements while still providing sufficient room for automobile lanes. A future school is planned to be developed along this corridor and the inclusion of bicycle and pedestrian infrastructure will ensure the appropriate facilities are in place to enhance the safety and access to this future school for all users.

E. HARMONY ROAD AND WCR 21 BIKE LANES

There are currently gaps in the bike lane network along E. Harmony Road and WCR 21. Specifically, there is no westbound bike lane along E. Harmony Road from Ponderosa Drive to

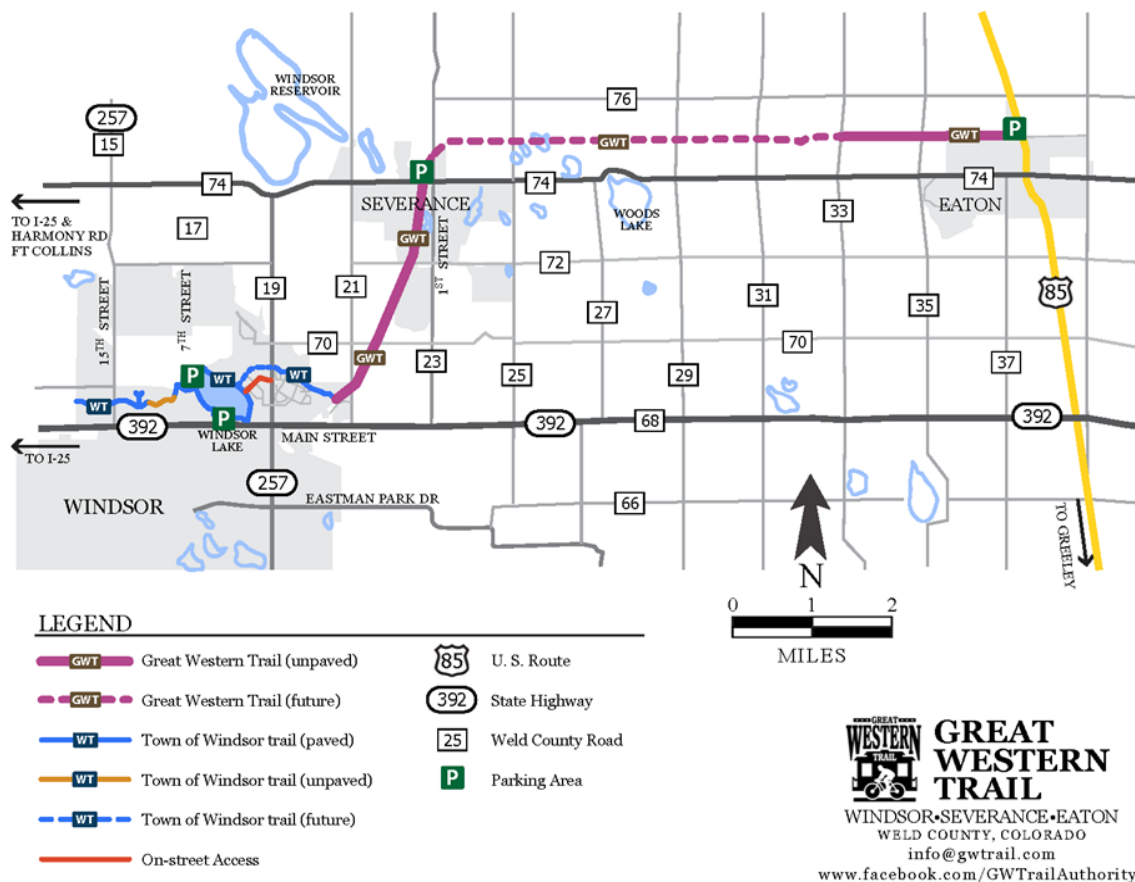
Mahogany Way. The sporadic pattern of development has also created gaps in the bike lane network along WCR 21 from E. Harmony Road to WCR 72. There are opportunities for the Town to work with developers to complete the network. The Town could also add paved shoulders in the gaps. To implement a complete network sooner, the Town could consider striping bike lanes and providing wayfinding signage along the existing collector street network. This could include bike routes along Audubon Boulevard, Ponderosa Drive and other collectors.

BUFFERED BIKE LANES

Buffered bike lanes are conventional bicycle lanes paired with a designated buffer space separating the bicycle lane from the adjacent motor vehicle travel lane and/or parking lane. If bike lanes are added to arterial or collector roads, the Town should consider buffered bike lanes where feasible.

GREAT WESTERN TRAIL

One of the Town's significant community assets is the roughly 2.5-mile portion of the Great Western Trail which runs diagonally through the heart of Severance. This wide, multi-use path is part of a larger 10.5-mile regional trail which, upon completion, will connect the towns of Windsor, Severance, and Eaton along the route of the former Great Western Railroad. The unpaved trail is improved with crusher fines and lined with native grasses and currently serves as a recreational amenity for walkers, bikers, and other exercise enthusiasts. Existing street crossings through the Town have been upgraded with concrete pads and railings for pedestrian and bicycle use. The trail currently ends at 1st Street, about a quarter of a mile north of the center of town. Improvements to the unfinished sections of the Great Western Trail are currently ongoing with an anticipated completion date of 2021. At full build out the Great Western Trail will expand the local trail network to offer Severance residents larger regional trail connectivity to surrounding communities.



Source: www.gwtrail.com

The Great Western Trail's north-south alignment and expanse through the center of Severance offers unparalleled connectivity opportunities for adjacent residential neighborhoods, community destinations, and local schools. As the Town grows, the Great Western Trail will play an even more substantial role as a community asset. The trail's central alignment through the Town offers the opportunity for further amenities and activation along the path such as places to sit, wayfinding and interpretive signage, and shade trees. Such amenities and activation as exemplified in the conceptual rendering below will be key to the Trail's success as a local destination and cultural landmark.

At locations where the Great Western Trail crosses arterial roads, such as at E. Harmony Road, WCR 72 and WCR 70, the Town should consider safety improvements such as rectangular rapid flashing beacons (RRFBs), advanced warning signage and median refuges. A concept design is shown on the following page.



Conceptual Design for the Great Western Trail

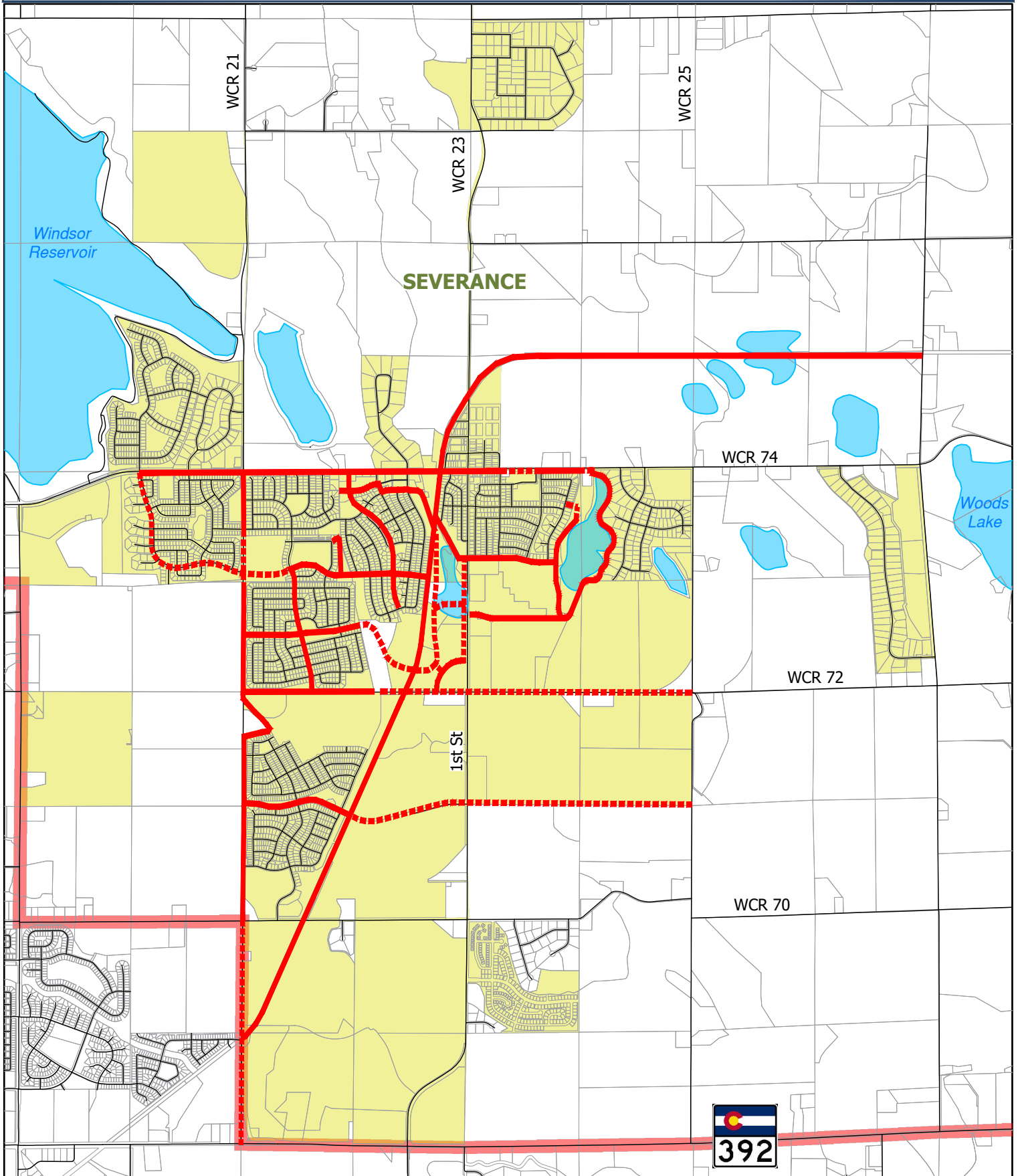


Concept for the Great Western Trail Crossing



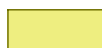

PARKS

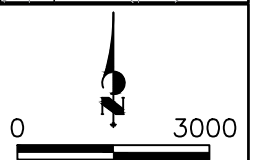
The Town should continue to improve safety at the numerous parks located throughout the Town. Some initial crosswalk and signage improvements are shown in **Appendix G**. As new parks are constructed in the future, consideration should be given to crosswalks and signage.

A concept design for the Great Western Trail pocket park is shown in **Appendix H**. The park would be located near the intersection of Railroad Avenue and 3rd Avenue.

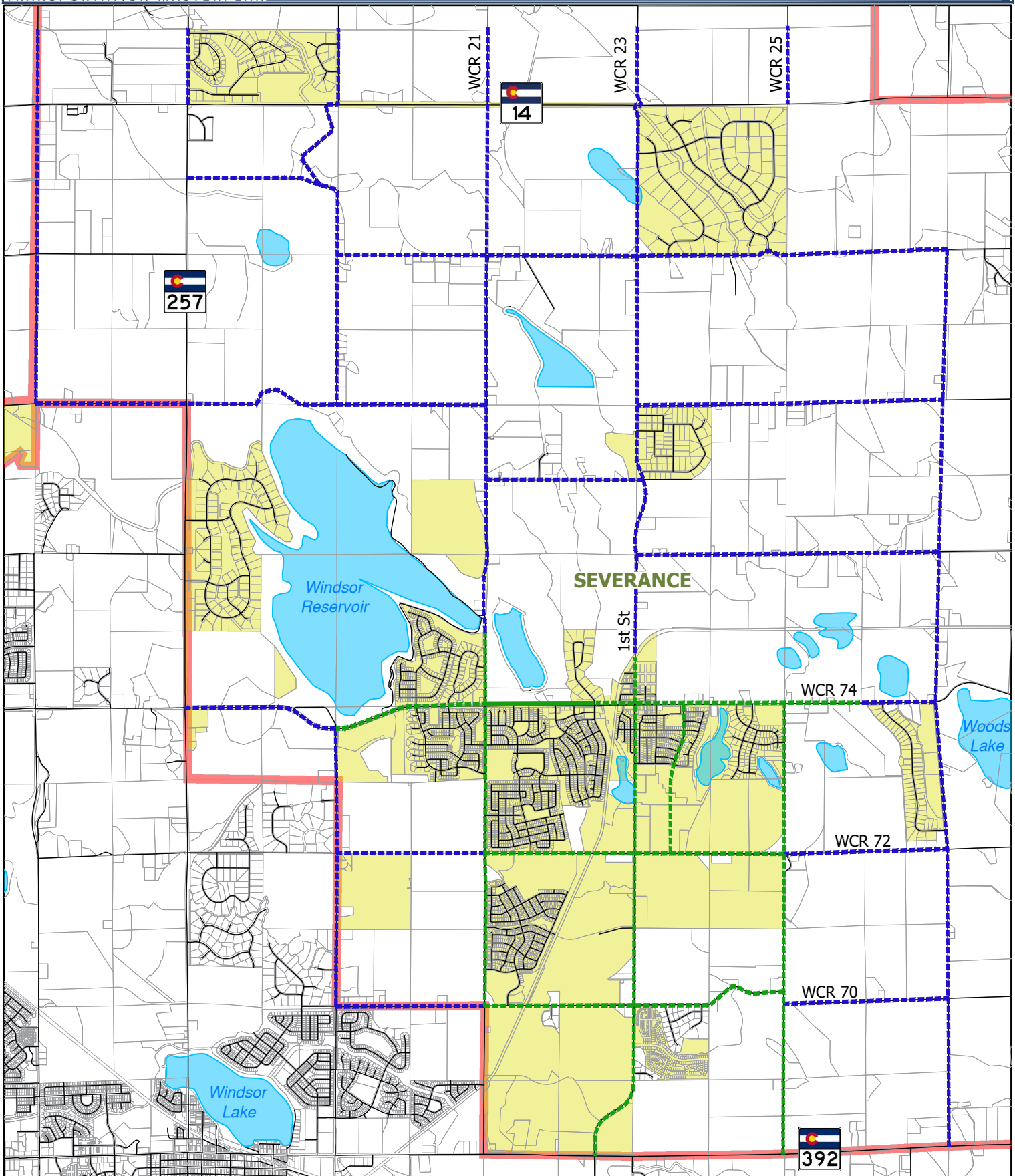


LEGEND

- | | | | |
|--|------------------------|---|-----------------|
|  | Growth Management Area |  | Existing Trails |
|  | Severance Town Limits |  | Future Trails |

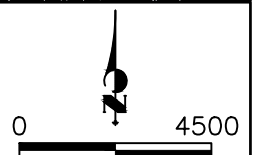


SCALE: 1" = 3000'



LEGEND

- | | |
|--|--|
| — Growth Management Area | - - - - - Wide Shoulder for Bicycles |
| Severance Town Limits | — Existing Bike Lane |
| | - - - - - Future Bike Lane |



TRANSIT OPPORTUNITIES

Severance should continue to participate in regional transit planning efforts along with other municipal, county, and regional jurisdictions. As roadways are improved, the designs should incorporate elements which would support transit services along the roadways.

If desired from the public, the Town should consider installing a park-and-ride. A study would need to be completed to determine the location and size of the facility.

The Town lacks a senior-ride transportation program. Usually this program is designed to provide transportation assistance to senior citizens (age 55 and older) who are unable to drive themselves or do not have alternate transportation. Rides are primarily provided to and from physician, eye doctor, and dental appointments. It is recommended that the Town explore a senior-ride transportation program.

TRANSPORTATION DEMAND MANAGEMENT

Transportation demand management (TDM) is a diverse host of actions that are employed to improve the efficiency of the transportation system. These actions alter transportation system demand by reducing single occupancy vehicle trips, encouraging off peak travel, and/or reducing trip time or length. In short, TDM helps travelers use the transportation system more efficiently by providing information, a diversity of modal choices, and making that system more accessible, predictable, and reliable.

Traditionally communities have implemented TDM programs that encourage employee commuters who normally drive alone to choose higher occupancy modes or other non-motorized modes. These can be programs that increase use of transit, implement carpool and vanpool programs, encourage bicycling and walking, or formalize telework and alternative work schedules.

Today, the definition of TDM has broadened to include all users of the transportation system (not just employed commuters) and includes a broader spectrum of measures that influence demand, including intelligent transportation systems (ITS), congestion pricing, and parking pricing and management. When applied with the goal of increasing the use transportation alternatives such as transit or ridesharing, these additional financial and information-related measures can have significant impact.

TDM IMPLEMENTATION FOR DEVELOPMENTS

At congested locations (e.g., corridors, intersections); the Town should consider requiring TDM-related elements to help mitigate congestion as part of final development approvals for new construction or reconstruction. These elements could be infrastructure related, such as providing bike parking, transit shelters, or HOV parking, as well as programmatic elements like

implementing telework and incentives for ridesharing. These elements can be monitored for effectiveness by site-specific surveys and developers held accountable for implementation and/or construction of the negotiated TDM elements.

IDENTIFICATION OF PROJECTS

The transportation improvement projects that will be required to realize the Roadway Plan, the Pedestrian and Bicycle Plan, and other transportation improvement needs come from a variety of sources. Some are from analyses of existing and future deficiencies, including from Windsor. Other improvement projects were identified as a result of the travel demand modeling, and others came from citizen input through the public outreach process. The following sections provide an overview of the transportation improvement projects presented in the figures in the previous chapter.

NEW ROADWAY CONNECTIONS

Although Severance's existing roadway network capacity is expected to accommodate forecasted future traffic growth, there are a few new roadway connections that would help improve connectivity and traffic flows.

1. Connect Ponderosa Drive with WCR 21 (completed during preparation of this plan)
2. Connect WCR 72 between WCR 19 and WCR 21
3. Connect missing portions of WCR 27 between SH 14 and E. Harmony Road
4. Connect WCR 21 between SH 14 and WCR 80

ROADWAY PAVING PROJECTS

As Severance grows, traffic volumes are expected to increase on the many gravel roads in the rural areas surrounding the town. When volumes reach or exceed 200 vehicles per day on gravel facilities, additional grading and dust suppression measures are required to maintain the roadway. In addition to providing air quality benefits, it usually becomes more cost effective at this point to pave the facility rather than increase maintenance measures. This also presents the opportunity to incorporate the design elements illustrated in the cross-sections adopted by the Town.

It is anticipated that all gravel roads within the GMA will require paving over the next 20 years, with a few segments identified for paving to complete a cohesive network. The following is a comprehensive list of roadways to be paved:

5. All unpaved roads within downtown Severance (completed during preparation of this plan)
6. WCR 72 from WCR 23 to WCR 25
7. All unpaved segments of WCR 27 between SH 14 and E. Harmony Road
8. WCR 25 from E. Harmony Road to SH 392
9. WCR 70 from WCR 25 to WCR 27

10. WCR 72 from WCR 25 to WCR 27
11. WCR 21 from Fox Ridge to WCR 76.5
12. WCR 21 from WCR 76.5 to WCR 80
13. WCR 76 from WCR 23 to WCR 27
14. WCR 78 from WCR 13 to WCR 21
15. WCR 78 from WCR 23 to WCR 27
16. WCR 80 from WCR 19 to WCR 27
17. WCR 80.5 from SH 257 to WCR 19
18. WCR 19 from WCR 82.5 to WCR 80.5
19. WCR 21 from WCR 82.5 to SH 14

CORRIDOR IMPROVEMENT PROJECTS

Area growth also presents the opportunity to improve roads that are currently paved but lack such things as bicycle facilities (shoulders and bike lanes), consistent lane widths, and sidewalks. The following is a comprehensive list of roadways to be upgraded, as funds and growth dictate, to match the cross-sections shown previously in this plan:

20. E. Harmony Road from WCR 21 to Mahogany Way/Immigrant Trail to a **4-Lane Major Arterial**
21. WCR 23 from Harvest Moon Drive to SH 392 to a **4-Lane Major Arterial**
22. WCR 21 from the Windsor Reservoir to SH 392 to a 2-Lane Minor Arterial
23. E. Harmony Road from SH 257 to WCR 21 to a **4-Lane Major Arterial**
24. E. Harmony Road from the eastern end of the Suburban Perimeter to WCR 27 to a **4-Lane Major Arterial**
25. WCR 23 from the northern GMA boundary to the northern end of the Town Core
26. WCR 19 from WCR 70 to E. Harmony Road to a **4-Lane Major Arterial**
27. WCR 27 from E. Harmony Road to SH 392 to a 2-Lane Major Arterial
28. WCR 70 from WCR 19 to WCR 21 to a 2-Lane Major Arterial
29. WCR 70 from WCR 21 to WCR 25 to a 2-Lane Major Arterial
30. WCR 80 from WCR 15 to SH 257 to a 2-Lane Minor Arterial
31. WCR 15 from the northern GMA boundary to WCR 78 to a 2-Lane Minor Arterial
32. WCR 17 from the northern GMA boundary to SH 14 to a 2-Lane Minor Arterial
33. WCR 25 from the northern GMA boundary to SH 14 to a 2-Lane Minor Arterial

INTERSECTION IMPROVEMENT PROJECTS

Analysis of crash records, existing and future traffic volumes, and speed limits resulted in a need for additional turn lanes to be constructed at the following locations:

34. Install all-way stop control at Summit View/Snowmass and Avery Plaza/Wild Basin intersections
 - a. Both intersections include two residential neighborhood collector (through) streets of similar design and operating characteristics where multi-way stop control would improve traffic operational characteristics of the intersection.
35. Right turn lane on eastbound SH 14 to WCR 23
36. Install traffic signal at E. Harmony Road and WCR 19
37. Conduct turning analysis and install traffic signal at E. Harmony Road and WCR 23
38. Install traffic signal and turn lanes at WCR 72 and WCR 21
39. Install roundabout at WCR 72 and WCR 23
40. Install traffic signal and turn lanes at WCR 70 and WCR 21
41. Install traffic signal and turn lanes at WCR 70 and WCR 23
42. Install traffic signal at SH 392 and WCR 23
43. Install traffic signal at WCR 23 and Hidden Valley Pkwy
44. Install traffic signal at E. Harmony Road and Timber Ridge Pkwy
45. Install right turn lane on northbound WCR 21 at Hidden Valley Pkwy

BICYCLE AND PEDESTRIAN FACILITIES

Most bicycle and pedestrian improvements in Severance will come from the addition of bike lanes, wide shoulders, sidewalks, and paths being constructed as part of upgrading corridors to the Town's standard cross-sections. However, there are numerous other projects that improve bicycling and walking, including the addition of crosswalks on:

46. Parks throughout Town (listed in Appendix G)
47. North and east legs of E. Harmony Road and WCR 21
48. Intersections around Range View Elementary School
49. All legs of Scotch Pine Drive and Windflower Way
50. All legs of Scotch Pine Drive and Mahogany Way
51. All legs of Timber Ridge Parkway and Scotch Pine Drive
52. All legs of Ponderosa Drive and Windflower Way
53. All legs of Ponderosa Drive and Mahogany Way

In addition to crosswalks, the following projects are recommended to address multimodal needs:

54. Restripe E. Harmony Road to have bike lanes on both sides from Ponderosa Drive to Mahogany Way
55. Restripe WCR 21 to have bike lanes on both sides from E. Harmony Road to Ponderosa Drive

56. Pedestrian and bicycle improvements along 1st Street
57. Stripe Timber Ridge Parkway with bicycle lanes
58. Stripe Tailholt Avenue with bicycle lanes
59. Pave shared use path along the new Ponderosa Drive connection (completed during preparation of this plan)
60. Pave shared use path between the Great Western Trail and new high school (completed during preparation of this plan)
61. Pave shared use path around the Windsor Reservoir
62. Pave shared use path connection between the proposed Windsor Reservoir path and WCR 19 / WCR 78
63. Complete the missing portion of the Great Western Trail between Severance and Eaton with crusher fines and installing infrastructure to restrict vehicle access along the trail

PLAN IMPLEMENTATION

The implementation of the planned roadway improvements in the Town will be conducted and funded by the Town, adjacent jurisdictions, developers, state or federal funding, and other sources. Although funding sources for these projects will vary, planning-level cost estimates for each project are also presented in the tables on the following pages. Much of the needed right-of-way will be obtained from adjacent future development. The need for certain projects, such as the paving of county roads, will probably be created by specific developments, and these developers should be held responsible for funding such projects, likely through transportation impact fees. It should be noted that the cost estimates for all collector and arterial roads are based on the urban cross-sections, which include curb and gutter, and are tailored to the specific existing characteristics of the location where the improvement is recommended. Detailed cost opinions based on 2020 unit costs are available in **Appendix I**. Cost estimates presented in this plan are high-level planning estimates and exclude the costs of right-of-way acquisitions.

PROJECT PRIORITIZATION

Based on input from the public, Town staff and Board members, and on projected travel demand, the transportation improvement projects have been divided into three categories of short-term needs (1 to 5 years), mid-term needs (5 to 10 years) and long-term needs (10 to 20 years). The categories and recommendations are meant to serve as a guideline. The improvements should be pursued in an order that relates to development and growth within and around Severance. The projects are in terms of general time frames and are not prioritized within each time frame.

Table 10: Short-term Projects (0-5 years)

ID #	Improvement Type	Location and Description	Probable Cost*	Responsibility
11	Paving	Pave WCR 21 from Fox Ridge to WCR 76.5 (± 1.00 Miles)	\$4,361,000	Town, Developer
23	Corridor	Improve E. Harmony Road from SH 257 to WCR 21 to a 4-Lane Major Arterial (± 2.00 Miles)	\$8,417,000	Town
34	Intersection	Install all-way stop control at Summit View/Snowmass and Avery Plaza/Wild Basin intersections	\$5,000	Town
36	Intersection	Install traffic signal at E Harmony Road & WCR 19	\$791,000	Town, Weld County
37	Intersection	Install traffic signal at E Harmony Road & WCR 23	\$791,000	Town, Developer
39	Intersection	Install roundabout at WCR 72 & WCR 23	\$1,478,000	Town, Developer
42	Intersection	Install traffic signal at SH 392 & WCR 23	\$791,000	CDOT, Town, Developer
45	Intersection	Install right turn lane on northbound WCR 21 at Hidden Valley Pkwy	\$215,000	Town
46	Bicycle & Pedestrian	Install Crosswalks and Signage at parks throughout Town	\$100,000	Town
47	Bicycle & Pedestrian	Install Crosswalks, North and east legs of E Harmony Road and WCR 21	\$10,000	Developer
48	Bicycle & Pedestrian	Install Crosswalks, Intersections around Range View Elementary School	\$10,000	Town
49	Bicycle & Pedestrian	Install Crosswalks, All legs of Scotch Pine Drive and Windflower Way	\$10,000	Town
50	Bicycle & Pedestrian	Install Crosswalks, All legs of Scotch Pine Drive and Mahogany Way	\$10,000	Town
51	Bicycle & Pedestrian	Install Crosswalks, All legs of Timber Ridge Parkway and Scotch Pine Drive	\$10,000	Town
52	Bicycle & Pedestrian	Install Crosswalks, All legs of Ponderosa Drive and Windflower Way	\$10,000	Town
53	Bicycle & Pedestrian	Install Crosswalks, All legs of Ponderosa Drive and Mahogany Way	\$10,000	Town
56	Bicycle & Pedestrian	Pedestrian and bicycle improvements along 1st Street	N/A	Town
57	Bicycle & Pedestrian	Stripe Timber Ridge Parkway with bicycle lanes	\$25,000	Town
58	Bicycle & Pedestrian	Stripe Tailholt Avenue with bicycle lanes	\$20,000	Town
63	Bicycle & Pedestrian	Complete the missing portion of the Great Western Trail between Severance and Eaton with crusher fines and installing infrastructure to restrict vehicle access along the trail	N/A	Great Western Trail Authority
Short Term Subtotal (*Costs do not include right-of-way acquisition)				\$17,064,000

Table 11: Mid-term Projects (5 to 10 years)

ID #	Improvement Type	Location and Description	Probable Cost*	Responsibility
2	New Road	Connect WCR 72 between WCR 19 and WCR 21 as a Rural Arterial (± 1.00 Miles)	\$4,169,000	Town, Developer
5	Paving	Pave all gravel roads within Town Limits (± 0.59 Miles)	\$1,725,000	Town
6	Paving	Pave WCR 72 from WCR 21 and WCR 25 (± 2.00 Miles)	\$12,190,000	Town, Developer
20	Corridor	Improve E. Harmony Road from WCR 21 to Mahogany Way/Immigrant Trail to a 4-Lane Major Arterial (± 2.75 Miles)	\$16,757,000	Town
21	Corridor	Improve WCR 23 from Harvest Moon Drive to SH 392 to a 4-Lane Major Arterial (± 3.50 Miles)	\$21,326,000	Town, Developer
22	Corridor	Improve WCR 21 from the Windsor Reservoir to SH 392 to a 2-Lane Minor Arterial (± 3.50 Miles)	\$21,326,000	Town, Developer
24	Corridor	Improve E. Harmony Road from the eastern end of the Suburban Perimeter to WCR 27 to a 4-Lane Major Arterial (± 3.50 Miles)	\$10,102,000	Town
26	Corridor	Improve WCR 19 from WCR 70 to E. Harmony Road to a 4-Lane Major Arterial (± 1.85 Miles)	\$7,702,000	Town, Developer
35	Intersection	Install right turn lane on eastbound SH 14 at WCR 23	\$215,000	CDOT, Town
38	Intersection	Install traffic signal and turn lanes at WCR 72 & WCR 21	\$1,008,000	Town, Developer
40	Intersection	Install traffic signal and turn lanes at WCR 70 & WCR 21	\$1,028,000	Town, Developer
41	Intersection	Install roundabout at WCR 70 & WCR 23	\$1,478,000	Town, Developer
43	Intersection	Install traffic signal at WCR 23 and Hidden Valley Pkwy	\$791,000	Town
44	Intersection	Install traffic signal at E Harmony Road and Timber Ridge Pkwy	\$791,000	Town
54	Bicycle & Pedestrian	Restripe E Harmony Road to have bike lanes on both sides from Ponderosa Drive to Mahogany Way	\$50,000	Town
55	Bicycle & Pedestrian	Restripe WCR 21 to have bike lanes on both sides from E Harmony Road to Ponderosa Drive	\$25,000	Town
Mid Term Subtotal (*Costs do not include right-of-way acquisition)				\$100,683,000

Table 12: Long-term Projects (10 to 20 years)

ID #	Improvement Type	Location and Description	Probable Cost*	Responsibility
3	New Road	Connect missing portions of WCR 27 between SH 14 and E Harmony Road as a Rural Arterial (± 1.36 Miles)	\$5,682,000	Town, Developer
4	New Road	Connect WCR 21 between SH 14 and WCR 80 as a Rural Arterial (± 1.00 Miles)	\$4,169,000	Town, Developer
7	Paving	Pave all existing segments of WCR 27 between SH 14 and E Harmony Road (± 2.70 Miles)	\$11,235,000	Town, Developer
8	Paving	Pave WCR 25 from E Harmony Road to SH 392 (± 3.00 Miles)	\$18,276,000	Town, Developer
9	Paving	Pave WCR 70 from WCR 25 to WCR 27 (± 1.00 Miles)	\$4,169,000	Town, Developer
10	Paving	Pave WCR 72 from WCR 25 to WCR 27 (± 1.00 Miles)	\$4,169,000	Town, Developer
12	Paving	Pave WCR 21 from WCR 76.5 to WCR 80 (± 1.50 Miles)	\$6,410,000	Town, Developer
13	Paving	Pave WCR 76 from WCR 23 to WCR 27 (± 2.00 Miles)	\$8,329,000	Town, Developer
14	Paving	Pave WCR 78 from WCR 13 to WCR 21 (± 4.10 Miles)	\$17,039,000	Town, Developer
15	Paving	Pave WCR 78 from WCR 23 to WCR 27 (± 2.00 Miles)	\$8,329,000	Town, Developer
16	Paving	Pave WCR 80 from WCR 19 to WCR 27 (± 4.00 Miles)	\$16,641,000	Town, Developer
17	Paving	Pave WCR 80.5 from SH 257 to WCR 19 (± 1.00 Miles)	\$4,169,000	Town, Developer
18	Paving	Pave WCR 19 from WCR 82.5 to WCR 80.5 (± 1.17 Miles)	\$4,876,000	Town, Developer
19	Paving	Pave WCR 21 from WCR 82.5 to SH 14 (± 0.50 Miles)	\$2,088,000	Town, Developer
25	Corridor	Improve WCR 23 from the northern Growth Management boundary to the northern end of the Town Core (± 4.00 Miles)	\$16,641,000	Town, Developer
27	Corridor	Improve WCR 27 from E. Harmony Road to SH 392 to a 2-Lane Major Arterial (± 3.00 Miles)	\$12,487,000	Town, Developer
28	Corridor	Improve WCR 70 from WCR 19 to WCR 21 to a 2-Lane Major Arterial (± 1.00 Miles)	\$4,169,000	Town, Developer
29	Corridor	Improve WCR 70 from WCR 21 to WCR 25 to a 2-Lane Major Arterial (± 2.05 Miles)	\$12,494,000	Town, Developer
30	Corridor	Improve WCR 80 from WCR 15 to SH 257 to a 2-Lane Minor Arterial (± 1.00 Miles)	\$4,169,000	Town, Developer
31	Corridor	Improve WCR 15 from the northern GMA boundary to WCR 78 to a 2-Lane Minor Arterial (± 2.50 Miles)	\$10,409,000	Town, Developer
32	Corridor	Improve WCR 17 from the northern GMA boundary to SH 14 to a 2-Lane Minor Arterial (± 0.50 Miles)	\$2,088,000	Town, Developer
33	Corridor	Improve WCR 25 from the northern GMA boundary to SH 14 to a 2-Lane Minor Arterial (± 0.50 Miles)	\$2,088,000	Town, Developer
61	Bicycle & Pedestrian	Pave shared use path around the Windsor Reservoir	\$18,000,000	Town
62	Bicycle & Pedestrian	Pave shared use path connection between the proposed Windsor Reservoir path and WCR 19 / WCR 78	\$500,000	Town
Long Term Subtotal (*Costs do not include right-of-way acquisition)				\$198,626,000

FUNDING

Like most other municipalities along Colorado's Front Range, the Town of Severance is experiencing significant growth, and this can be a challenge for the funding of various types of transportation improvements. Not only are future needs significant in monetary terms, but the Town should consider strategies that leverage new development to provide funding for the transportation infrastructure improvements that are a result of this new growth. New development in the Town will generate new vehicle trips and associated new demands on the Town's road system. The impacts of different developments vary from a small number of trips for a single new home to many trips for a major residential subdivision or commercial development. Major developments should submit a traffic impact study, estimating the number of trips expected to be generated, the expected distribution of those trips onto the surrounding roadway network, and identify major road improvements needed to accommodate the increase in traffic demand.

Following is a summary of financing options that can be considered, individually or in combination, by the Town of Severance to fund these improvements to the major road system to address existing deficiencies or needs created by new development.

SEVERANCE CAPITAL IMPROVEMENT PROGRAM

Much of the funding for improvements to existing roads is currently funded using general Town funds through a capital improvement program. These funds are limited by the size of the anticipated Town revenues through the annual budgeting process.

TRANSPORTATION IMPACT FEES

Transportation impact fees are development exactions that are a common funding mechanism used by many local governments, including Severance, to impose charges on new development to generate revenues for funding of off-site road improvements necessitated by new development. These fees allow developer contributions to be pooled so that road improvements can be implemented on a community-wide basis. These fees cannot legally be applied to existing deficiencies or to improvements that would be a result of traffic passing through Severance. It is important to regularly update impact fees to keep pace with the rising costs of construction.

FEDERAL/STATE FUNDING

State highways are the primary responsibility of CDOT, in coordination with the North Front Range Metropolitan Planning Organization (NFRMPO). The decision to improve these facilities will be based on state and region wide funding considerations. Severance should monitor this process closely and may need to be prepared to provide local matching funds to leverage money on regionally significant corridors. It should be noted that the availability of federal and

state funding for transportation projects in the NFRMPO is currently limited. Funding sources that might be applicable to some of Severance's projects include Transportation Alternatives Program (TAP), Congestion Mitigation and Air Quality Improvement Program (CMAQ), and Surface Transportation Program (STP-Metro).

The Town should be proactive in applying for funds to make improvements both on the state highways and local arterial roadways. CDOT will likely not do anything unless it is a larger regional project.

REGIONAL TRANSPORTATION DISTRICT

The Town is currently a member of the NFRMPO. The NFRMPO holds periodic Calls for Projects to award federal funding to transportation projects. The most recent Call for Projects was held in 2018-2019 for funding in Fiscal Years (FY) 2022 and 2023. Selected projects become part of the Transportation Improvement Program (TIP). The TIP identifies the surface transportation projects and activities to be funded in the NFRMPO area over a four-year period. The TIP includes roadway, transit, bicycle, and pedestrian improvements that are federally funded or regionally significant.

The FY 2020-2023 TIP was adopted by the NFRMPO Planning Council on June 6, 2019 and re-adopted by Planning Council on September 5, 2019. The TIP became effective upon incorporation into the Statewide TIP (STIP) maintained by CDOT, in December 2019.

BOND PROGRAMS

Severance can use long term financing programs to allow capital improvements to proceed sooner than would be possible with a "pay-as-you-go" approach. This approach is most common for capital improvements in entities with an expanding tax base. Again, voter approval would be required.

SPECIAL SERVICE DISTRICTS

Special districts are another option to link specific transportation improvements to funding generated from the development associated with the demand for, or benefitting from, the improvements. Under Colorado law, there are several forms of special service districts. One form, a Tax Increment District, can be applicable for a commercial development. The incremental tax revenues generated by the development are either dedicated to fund public costs to serve the area or to rebate developer-incurred costs expended on public improvements for the project.

Another form, a General Improvement District, can use a mill levy to pay for a set of improvements that are identified prior to setting up the district so that the approvals are done up front. This also allows bonds to be sold as the values increase.

ENERGY AND MINERAL IMPACT ASSISTANCE FUND

The Colorado Department of Local Affairs' (DOLA) Energy and Mineral Impact Assistance Fund provides funds generated from the state's severance tax to assist local governments that are socially and/or economically impacted by the development, processing, or energy conversion of minerals and mineral fuels. A variety of projects can be funded by the grant, including road improvements, construction/improvements to recreation centers, and local government planning.

SAFE ROUTES TO SCHOOLS

The proposed bicycle and pedestrian projects identified in this plan provide a good foundation of future projects to consider for funding opportunities that will result in a more connected and healthier community. Many of these proposed bicycle and pedestrian trail improvements offer access to community schools. The Safe Routes to School program that is managed through the Colorado Department of Transportation is a funding opportunity to consider for projects that enhance mobility and safety to a school site. This program offers grants to school districts and local governments that can be utilized for pedestrian and bicycle focused infrastructure improvements as well as educational programs that teach school age children about how to safely walk or bike to a school. Additional information about these grant initiatives can be found at: <https://www.codot.gov/programs/bikeped/safe-routes>.

RECOMMENDATIONS

The intent of this Transportation Master Plan is to ensure that the Town of Severance has a plan in place to effectively upgrade the transportation system. Severance's Roadway Plan includes intersection improvements and roadway improvement projects, paving of county roads, and completing new roadway links. The Pedestrian and Bicycle Plan includes shared use trails and bike lane facilities. Some of these projects will be the responsibility of the Town (often in conjunction with private development), while others are more regional in nature and will require coordination with CDOT, the North Front Range MPO and/or surrounding jurisdictions. The following list provides a summary of actions the Town of Severance should consider taking to ensure that the needed transportation improvements are funded:

- Begin to plan and budget for completion of the improvements that have been identified for the short term.
- Require traffic impact studies from all proposed developments so that the requirements for internal roadways and impacts to the surrounding roadway system can be evaluated. For estimating background traffic volumes, a 5% annual growth rate should be used for through lanes on arterial roads. If a proposed development would impact state highways or county roads, require a referral to CDOT or Weld County for development review.
- Work with CDOT, NFRMPO, and Weld County to widen E. Harmony Road to a four-lane facility as traffic volumes grow and warrant a four-lane facility through the area.
- Work with CDOT to implement the proposed projects along the state highways traversing through Severance's GMA, including safety assessments, speed limit analysis studies, and other intersection improvements.
- Improve arterial intersections with turn lanes, traffic signals or roundabouts as traffic volumes grow and warrant improvements.
- Update the transportation impact fee program on a regular basis allows developer contributions for major road improvements to be pooled so that road improvements can be implemented on a community-wide basis.
- Continue to participate in the North Front Range MPO regional transportation planning process and other regional planning initiatives to ensure the consideration of Severance's vision for regional roadways, including the completion of a fully connected WCR 27.
- Adopt City of Greeley and CDOT's State Highway Access Code guidelines as part of the adoption of the Severance Transportation Plan.
- Continue to monitor traffic volumes, safety concerns, and land use development to assess speed limits and conditions for recommended traffic signals.

- Prepare and update street design standards that include geometric design information by street classification that is tied to design and posted speed limits.

APPENDIX A

PUBLIC COMMENTS

#1

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Friday, December 18, 2020 8:19:28 PM
Last Modified: Friday, December 18, 2020 8:21:37 PM
Time Spent: 00:02:08
IP Address: 134.195.224.36

Page 1: Written Feedback

Q1

Please review the Draft Transportation Master Plan at the link below and provide a response in the box.https://www.townofseverance.org/sites/g/files/vyhlif4986/f/uploads/transportation_plan-2020-11-10_draft.pdf

Nearly all the "planned signals" and roundabout are completely unnecessary. The only planned signal that is appropriate is 1st and 392. The rest will do nothing but anger drivers waiting for a significant amount of time and backing up traffic for a signal to change when they could have safely made their maneuver after stopping at a stop sign. Also the roundabout is not needed at that intersection it does not get nearly enough traffic. We should not be adding all this just for the sake of adding it and spending money especially at \$600-800K per traffic signal.

#2

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Wednesday, December 23, 2020 11:15:32 AM
Last Modified: Wednesday, December 23, 2020 11:23:28 AM
Time Spent: 00:07:55
IP Address: 64.234.245.8

Page 1: Written Feedback

Q1

Please review the Draft Transportation Master Plan at the link below and provide a response in the box.https://www.townofseverance.org/sites/g/files/vyhlif4986/f/uploads/transportation_plan-2020-11-10_draft.pdf

My concerns mainly lie with the widening and expanded use of CR 27, whereas CR 29 is already designated as a major arterial by Weld county and is connected all the way to CR100 from CR 64 (O Street). As the county has already defined setbacks and CR 29 is within the growth management area of town of severance, CR29 should prove a suitable major arterial for future use and will not create property crossing issues like CR 27 at CR 78.5 and CR 80, and the future realignment of CR 27 at CR 68 (HWY 392) to CR 64. Keeping corridor infrastructure to a minimum to maintain that small town feel and continuing agricultural use adjacent to existing town and future residential is critical to us and our future operations within the growth management area of Town of Severance, I hope you will find that cr29 is a much more suitable connector and is already wholly in place to be used and expanded upon, whereas cr27 would require substantial investment and potential legal issues that could be detrimental to the positive growth of the town.

#3

COMPLETE

Collector: Web Link 1 (Web Link)
Started: Thursday, December 24, 2020 8:31:43 AM
Last Modified: Thursday, December 24, 2020 9:06:21 AM
Time Spent: 00:34:38
IP Address: 75.100.145.77

Page 1: Written Feedback

Q1

Please review the Draft Transportation Master Plan at the link below and provide a response in the box.https://www.townofseverance.org/sites/g/files/vyhlif4986/f/uploads/transportation_plan-2020-11-10_draft.pdf

I am very excited to see this plan! I am delighted to see the focus, within the 1-5 year plan, is implementation of traffic lights, roundabouts and crosswalks. The safety of our residents should be the #1 priority. I think the town desperately needs this infrastructure and we are definitely behind in implementing these systems. Reading the plan, seeing all the data gathered, brings renewed hope back to our town. I anxiously await for these projects to start. Thank you to everyone who has put such work into the Master Transportation Plan!

APPENDIX B

TRAFFIC COUNTS

All Traffic Data Services
www.alltrafficdata.net

Date Start: 22-Oct-20

Site Code: 1

Station ID: 1

AUDUBON BLVD N.O. PONDEROSA DR

NB

Start Time	15	20	25	30	35	40	45	50	55	60	65	70	75	999	Total	85th Percent	95th Percent
10/22/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	4	1	0	0	0	0	0	0	0	0	0	0	5	26	28
05:00	0	0	6	1	1	0	0	0	0	0	0	0	0	0	8	28	32
06:00	0	4	13	12	1	0	0	0	0	0	0	0	0	0	30	28	29
07:00	45	110	47	10	2	0	0	0	0	0	0	0	0	0	214	22	25
08:00	0	2	9	3	0	0	0	0	0	0	0	0	0	0	14	26	28
09:00	0	6	15	3	1	0	0	0	0	0	0	0	0	0	25	25	29
10:00	0	6	12	2	1	0	0	0	0	0	0	0	0	0	21	24	29
11:00	0	2	10	5	0	0	0	0	0	0	0	0	0	0	17	27	29
12 PM	0	3	13	2	0	0	0	0	0	0	0	0	0	0	18	24	27
13:00	8	13	12	0	0	0	0	0	0	0	0	0	0	0	33	22	24
14:00	36	63	36	8	0	0	0	0	0	0	0	0	0	0	143	23	25
15:00	2	6	22	6	2	0	0	0	0	0	0	0	0	0	38	26	30
16:00	0	7	13	11	0	0	0	0	0	0	0	0	0	0	31	27	29
17:00	0	1	13	6	2	0	0	0	0	0	0	0	0	0	22	28	32
18:00	0	7	12	4	1	0	0	0	0	0	0	0	0	0	24	26	29
19:00	0	0	6	6	1	0	0	0	0	0	0	0	0	0	13	29	31
20:00	0	2	4	2	0	0	0	0	0	0	0	0	0	0	8	27	29
21:00	0	1	2	1	0	0	0	0	0	0	0	0	0	0	4	27	29
22:00	0	0	2	1	1	0	0	0	0	0	0	0	0	0	4	32	33
23:00	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	19	19
Total	91	235	251	84	13	0	0	0	0	0	0	0	0	0	674		
Percent	13.5%	34.9%	37.2%	12.5%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	07:00	07:00	06:00	07:00										07:00		
Vol.	45	110	47	12	2										214		
PM Peak	14:00	14:00	14:00	16:00	15:00										14:00		
Vol.	36	63	36	11	2										143		
Grand Total	91	235	251	84	13	0	0	0	0	0	0	0	0	0	674		
Percent	13.5%	34.9%	37.2%	12.5%	1.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 15 MPH
50th Percentile : 20 MPH
85th Percentile : 24 MPH
95th Percentile : 28 MPH

Statistics
10 MPH Pace Speed : 16-25 MPH
Number in Pace : 486
Percent in Pace : 72.1%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%
Mean Speed(Average) : 20 MPH

All Traffic Data Services
www.alltrafficdata.net

Date Start: 22-Oct-20

Site Code: 1

Station ID: 1

AUDUBON BLVD N.O. PONDEROSA DR

SB

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	Total	85th Percent	95th Percent
	15	20	25	30	35	40	45	50	55	60	65	70	75	999			
10/22/20	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	19	19
01:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	19	19
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	19	19
05:00	1	0	1	0	0	0	0	0	0	0	0	0	0	0	2	23	24
06:00	0	3	5	0	0	0	0	0	0	0	0	0	0	0	8	23	24
07:00	9	12	9	0	0	0	0	0	0	0	0	0	0	0	30	22	24
08:00	1	12	11	0	0	0	0	0	0	0	0	0	0	0	24	23	24
09:00	1	2	3	0	0	0	0	0	0	0	0	0	0	0	6	23	24
10:00	0	8	7	2	0	0	0	0	0	0	0	0	0	0	17	24	27
11:00	1	10	9	0	0	0	0	0	0	0	0	0	0	0	20	23	24
12 PM	3	9	6	0	0	0	0	0	0	0	0	0	0	0	18	22	24
13:00	7	20	7	1	0	0	0	0	0	0	0	0	0	0	35	21	24
14:00	12	22	15	0	0	0	0	0	0	0	0	0	0	0	49	22	24
15:00	4	14	10	0	1	0	0	0	0	0	0	0	0	0	29	23	24
16:00	2	11	27	0	0	0	0	0	0	0	0	0	0	0	40	23	24
17:00	1	17	20	3	0	0	0	0	0	0	0	0	0	0	41	24	26
18:00	1	13	18	1	0	0	0	0	0	0	0	0	0	0	33	23	24
19:00	0	3	14	1	1	0	0	0	0	0	0	0	0	0	19	24	30
20:00	0	6	8	0	0	0	0	0	0	0	0	0	0	0	14	23	24
21:00	0	5	4	2	0	0	0	0	0	0	0	0	0	0	11	25	28
22:00	0	3	3	1	0	0	0	0	0	0	0	0	0	0	7	24	28
23:00	0	3	2	0	0	0	0	0	0	0	0	0	0	0	5	23	24
Total	43	176	179	11	2	0	0	0	0	0	0	0	0	0	411		
Percent	10.5%	42.8%	43.6%	2.7%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	07:00	08:00	10:00											07:00		
Vol.	9	12	11	2											30		
PM Peak	14:00	14:00	16:00	17:00	15:00										14:00		
Vol.	12	22	27	3	1										49		
Grand Total	43	176	179	11	2	0	0	0	0	0	0	0	0	0	411		
Percent	10.5%	42.8%	43.6%	2.7%	0.5%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 15 MPH
50th Percentile : 19 MPH
85th Percentile : 23 MPH
95th Percentile : 24 MPH

Statistics
10 MPH Pace Speed : 16-25 MPH
Number in Pace : 355
Percent in Pace : 86.4%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%
Mean Speed(Average) : 19 MPH

All Traffic Data Services
www.alltrafficdata.net

Date Start: 22-Oct-20

Site Code: 2

Station ID: 2

AVERY PLAZA ST S.O. TIMBER RIDGE PKWY

NB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
10/22/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
06:00	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3	23	24
07:00	3	1	1	1	0	0	0	0	0	0	0	0	0	0	6	25	28
08:00	10	26	14	0	0	0	0	0	0	0	0	0	0	0	50	22	24
09:00	2	1	2	0	0	0	0	0	0	0	0	0	0	0	5	23	24
10:00	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3	23	24
11:00	1	4	1	0	0	0	0	0	0	0	0	0	0	0	6	20	23
12 PM	3	3	0	0	0	0	0	0	0	0	0	0	0	0	6	18	19
13:00	1	3	2	2	0	0	0	0	0	0	0	0	0	0	8	27	28
14:00	2	3	2	0	0	0	0	0	0	0	0	0	0	0	7	22	24
15:00	14	4	2	0	0	0	0	0	0	0	0	0	0	0	20	18	22
16:00	11	26	10	0	0	0	0	0	0	0	0	0	0	0	47	21	23
17:00	3	4	5	1	0	0	0	0	0	0	0	0	0	0	13	24	26
18:00	0	1	5	0	0	0	0	0	0	0	0	0	0	0	6	24	24
19:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	24	24
20:00	4	0	1	0	0	0	0	0	0	0	0	0	0	0	5	21	23
21:00	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	24	24
22:00	2	3	0	0	0	0	0	0	0	0	0	0	0	0	5	18	19
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
Total	56	81	53	4	0	0	0	0	0	0	0	0	0	0	194		
Percent	28.9%	41.8%	27.3%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	08:00	08:00	07:00											08:00		
Vol.	10	26	14	1											50		
PM Peak	15:00	16:00	16:00	13:00											16:00		
Vol.	14	26	10	2											47		
Grand Total	56	81	53	4	0	0	0	0	0	0	0	0	0	0	194		
Percent	28.9%	41.8%	27.3%	2.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 7 MPH
50th Percentile : 17 MPH
85th Percentile : 22 MPH
95th Percentile : 24 MPH

Statistics
10 MPH Pace Speed : 16-25 MPH
Number in Pace : 134
Percent in Pace : 69.1%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%
Mean Speed(Average) : 17 MPH

Date Start: 22-Oct-20

Site Code: 2

Station ID: 2

AVERY PLAZA ST S.O. TIMBER RIDGE PKWY

SB

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	999	Total	85th Percent	95th Percent
10/22/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	12	14
04:00	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	2	24	24
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
06:00	3	1	6	0	1	0	0	0	0	0	0	0	0	0	0	11	24	32
07:00	15	6	5	0	0	0	0	0	0	0	0	0	0	0	0	26	21	23
08:00	69	25	15	2	0	0	0	0	0	0	0	0	0	0	0	111	20	23
09:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3	22	24
10:00	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0	9	19	22
11:00	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	4	22	23
12 PM	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	4	22	24
13:00	2	1	3	0	0	0	0	0	0	0	0	0	0	0	0	6	23	24
14:00	6	1	3	1	0	0	0	0	0	0	0	0	0	0	0	11	23	27
15:00	22	6	1	0	0	0	0	0	0	0	0	0	0	0	0	29	17	19
16:00	9	3	4	1	0	0	0	0	0	0	0	0	0	0	0	17	23	25
17:00	2	3	1	1	0	0	0	0	0	0	0	0	0	0	0	7	24	28
18:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3	22	24
19:00	2	0	1	1	0	0	0	0	0	0	0	0	0	0	0	4	27	28
20:00	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	3	23	24
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
22:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	24	24
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
Total	139	57	49	6	1	0	0	0	0	0	0	0	0	0	0	252		
Percent	55.2%	22.6%	19.4%	2.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	08:00	08:00	08:00	06:00											08:00		
Vol.	69	25	15	2	1											111		
PM Peak	15:00	15:00	16:00	14:00												15:00		
Vol.	22	6	4	1												29		
Grand Total	139	57	49	6	1	0	0	0	0	0	0	0	0	0	0	252		
Percent	55.2%	22.6%	19.4%	2.4%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 4 MPH
50th Percentile : 13 MPH
85th Percentile : 21 MPH
95th Percentile : 24 MPH

Statistics
10 MPH Pace Speed : 16-25 MPH
Number in Pace : 106
Percent in Pace : 42.1%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%
Mean Speed(Average) : 14 MPH

Date Start: 22-Oct-20

Site Code: 3

Station ID: 3

TIMBER RIDGE PKWY W.O. AVERY PLAZA ST

EB

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	999	Total	85th Percent	95th Percent
10/22/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	24	24
02:00	0	0	2	0	1	0	0	0	0	0	0	0	0	0	0	3	32	34
03:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	24	24
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
06:00	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	5	24	24
07:00	1	8	12	3	0	0	0	0	0	0	0	0	0	0	0	24	24	28
08:00	7	44	28	2	0	0	0	0	0	0	0	0	0	0	0	81	23	24
09:00	0	5	4	0	0	0	0	0	0	0	0	0	0	0	0	9	23	24
10:00	1	6	5	1	0	0	0	0	0	0	0	0	0	0	0	13	24	26
11:00	1	5	6	2	0	0	0	0	0	0	0	0	0	0	0	14	24	28
12 PM	1	3	12	2	0	0	0	0	0	0	0	0	0	0	0	18	24	27
13:00	0	4	4	1	0	0	0	0	0	0	0	0	0	0	0	9	24	27
14:00	1	4	5	5	0	0	0	0	0	0	0	0	0	0	0	15	27	29
15:00	20	20	14	2	0	0	0	0	0	0	0	0	0	0	0	56	22	24
16:00	4	11	14	5	0	0	0	0	0	0	0	0	0	0	0	34	24	28
17:00	2	7	18	7	0	0	0	0	0	0	0	0	0	0	0	34	26	28
18:00	1	5	13	4	0	0	0	0	0	0	0	0	0	0	0	23	25	28
19:00	0	2	8	3	0	0	0	0	0	0	0	0	0	0	0	13	26	28
20:00	1	1	2	1	0	0	0	0	0	0	0	0	0	0	0	5	26	28
21:00	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	4	24	24
22:00	2	3	1	0	0	0	0	0	0	0	0	0	0	0	0	6	20	23
23:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	24	24
Total	42	128	160	38	1	0	0	0	0	0	0	0	0	0	0	369		
Percent	11.4%	34.7%	43.4%	10.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	08:00	08:00	07:00	02:00											08:00		
Vol.	7	44	28	3	1											81		
PM Peak	15:00	15:00	17:00	17:00												15:00		
Vol.	20	20	18	7												56		
Grand Total	42	128	160	38	1	0	0	0	0	0	0	0	0	0	0	369		
Percent	11.4%	34.7%	43.4%	10.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 15 MPH
50th Percentile : 20 MPH
85th Percentile : 24 MPH
95th Percentile : 27 MPH

Statistics
10 MPH Pace Speed : 16-25 MPH
Number in Pace : 288
Percent in Pace : 78.0%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%
Mean Speed(Average) : 20 MPH

All Traffic Data Services
www.alltrafficdata.net

Date Start: 22-Oct-20

Site Code: 3

Station ID: 3

TIMBER RIDGE PKWY W.O. AVERY PLAZA ST

WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
10/22/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	2	28	29
03:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	23	24
04:00	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	23	24
05:00	0	2	2	2	0	0	0	0	0	0	0	0	0	0	6	27	29
06:00	1	1	6	4	1	0	0	0	0	0	0	0	0	0	13	28	31
07:00	2	6	22	4	0	0	0	0	0	0	0	0	0	0	34	24	27
08:00	6	19	16	2	0	0	0	0	0	0	0	0	0	0	43	23	24
09:00	1	5	8	1	0	0	0	0	0	0	0	0	0	0	15	24	26
10:00	1	4	8	2	0	0	0	0	0	0	0	0	0	0	15	24	28
11:00	1	3	4	2	0	0	0	0	0	0	0	0	0	0	10	26	28
12 PM	0	1	5	2	0	0	0	0	0	0	0	0	0	0	8	27	28
13:00	2	3	7	1	0	0	0	0	0	0	0	0	0	0	13	24	26
14:00	0	6	6	0	0	0	0	0	0	0	0	0	0	0	12	23	24
15:00	3	5	6	1	0	0	0	0	0	0	0	0	0	0	15	23	26
16:00	10	13	17	0	0	0	0	0	0	0	0	0	0	0	40	23	24
17:00	4	0	6	2	1	0	0	0	0	0	0	0	0	0	13	27	31
18:00	0	1	6	0	0	0	0	0	0	0	0	0	0	0	7	24	24
19:00	0	1	2	1	1	0	0	0	0	0	0	0	0	0	5	31	33
20:00	0	1	3	4	0	0	0	0	0	0	0	0	0	0	8	28	29
21:00	0	2	1	0	0	0	0	0	0	0	0	0	0	0	3	22	24
22:00	2	1	0	0	0	0	0	0	0	0	0	0	0	0	3	17	19
23:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	24	24
Total	33	76	129	29	3	0	0	0	0	0	0	0	0	0	270		
Percent	12.2%	28.1%	47.8%	10.7%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	08:00	07:00	06:00	06:00										08:00		
Vol.	6	19	22	4	1										43		
PM Peak	16:00	16:00	16:00	20:00	17:00										16:00		
Vol.	10	13	17	4	1										40		
Grand Total	33	76	129	29	3	0	0	0	0	0	0	0	0	0	270		
Percent	12.2%	28.1%	47.8%	10.7%	1.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 15 MPH
50th Percentile : 21 MPH
85th Percentile : 24 MPH
95th Percentile : 28 MPH

Statistics 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 205
 Percent in Pace : 75.9%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%
Mean Speed(Average) : 20 MPH

All Traffic Data Services
www.alltrafficdata.net

Date Start: 22-Oct-20

Site Code: 4

Station ID: 4

TAILHOLT AVE N.O. HARVEST MOON DR

NB

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	999	Total	85th Percent	95th Percent
10/22/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	34	34
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	24	24
06:00	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	4	27	29
07:00	0	2	3	0	1	0	0	0	0	0	0	0	0	0	0	6	30	33
08:00	1	2	4	0	0	0	0	0	0	0	0	0	0	0	0	7	23	24
09:00	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	3	27	29
10:00	1	0	2	1	0	0	0	0	0	0	0	0	0	0	0	4	27	29
11:00	0	4	3	0	0	0	0	0	0	0	0	0	0	0	0	7	23	24
12 PM	1	3	1	2	1	0	0	0	0	0	0	0	0	0	0	8	29	32
13:00	1	5	2	0	0	0	0	0	0	0	0	0	0	0	0	8	22	23
14:00	0	3	4	0	0	0	0	0	0	0	0	0	0	0	0	7	23	24
15:00	2	5	2	0	0	0	0	0	0	0	0	0	0	0	0	9	21	23
16:00	1	8	4	2	0	0	0	0	0	0	0	0	0	0	0	15	24	28
17:00	0	3	4	1	0	0	0	0	0	0	0	0	0	0	0	8	24	28
18:00	1	1	3	0	0	0	0	0	0	0	0	0	0	0	0	5	23	24
19:00	0	1	2	2	1	0	0	0	0	0	0	0	0	0	0	6	30	33
20:00	1	0	2	0	0	0	0	0	0	0	0	0	0	0	0	3	23	24
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
22:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	19	19
23:00	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	19	19
Total	10	40	40	10	4	0	0	0	0	0	0	0	0	0	0	104		
Percent	9.6%	38.5%	38.5%	9.6%	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	08:00	11:00	08:00	06:00	02:00											08:00		
Vol.	1	4	4	1	1											7		
PM Peak	15:00	16:00	14:00	12:00	12:00											16:00		
Vol.	2	8	4	2	1											15		
Grand Total	10	40	40	10	4	0	0	0	0	0	0	0	0	0	0	104		
Percent	9.6%	38.5%	38.5%	9.6%	3.8%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 15 MPH
50th Percentile : 20 MPH
85th Percentile : 24 MPH
95th Percentile : 29 MPH

Statistics 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 80
 Percent in Pace : 76.9%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%
Mean Speed(Average) : 20 MPH

All Traffic Data Services
www.alltrafficdata.net

Date Start: 22-Oct-20

Site Code: 4

Station ID: 4

TAILHOLT AVE N.O. HARVEST MOON DR

SB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
10/22/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
05:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
06:00	1	1	3	2	0	0	0	0	0	0	0	0	0	0	7	27	29
07:00	0	2	1	0	2	0	0	0	0	0	0	0	0	0	5	33	34
08:00	0	2	2	2	1	0	0	0	0	0	0	0	0	0	7	29	33
09:00	1	1	3	2	3	0	0	0	0	0	0	0	0	0	10	32	34
10:00	0	3	2	2	1	0	0	0	0	0	0	0	0	0	8	29	32
11:00	5	1	1	2	1	0	0	0	0	0	0	0	0	0	10	28	32
12 PM	2	3	1	0	0	0	0	0	0	0	0	0	0	0	6	20	23
13:00	0	1	1	2	0	0	0	0	0	0	0	0	0	0	4	28	29
14:00	0	2	3	1	1	0	0	0	0	0	0	0	0	0	7	29	33
15:00	0	5	4	4	0	0	0	0	0	0	0	0	0	0	13	27	29
16:00	0	1	3	2	4	0	0	0	0	0	0	0	0	0	10	33	34
17:00	0	0	4	3	3	0	0	0	0	0	0	0	0	0	10	32	34
18:00	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3	23	24
19:00	0	2	2	0	1	0	1	0	0	0	0	0	0	0	6	40	43
20:00	0	1	0	1	0	0	0	0	0	0	0	0	0	0	2	28	29
21:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
22:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	29	29
23:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
Total	9	26	32	24	17	0	1	0	0	0	0	0	0	0	109		
Percent	8.3%	23.9%	29.4%	22.0%	15.6%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	11:00	10:00	06:00	06:00	09:00										09:00		
Vol.	5	3	3	2	3										10		
PM Peak	12:00	15:00	15:00	15:00	16:00		19:00								15:00		
Vol.	2	5	4	4	4		1								13		
Grand Total	9	26	32	24	17	0	1	0	0	0	0	0	0	0	109		
Percent	8.3%	23.9%	29.4%	22.0%	15.6%	0.0%	0.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 16 MPH
50th Percentile : 23 MPH
85th Percentile : 30 MPH
95th Percentile : 33 MPH

Statistics 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 58
 Percent in Pace : 53.2%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%
Mean Speed(Average) : 23 MPH

All Traffic Data Services
www.alltrafficdata.net

Date Start: 22-Oct-20

Site Code: 5

Station ID: 5

PONDEROSA DR W.O. WINDFLOWER WAY

EB

Start Time	15	16	21	26	31	36	41	46	51	56	61	66	71	76	999	Total	85th Percent	95th Percent
10/22/20	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	24	24
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
04:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	29	29
05:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	24	24
06:00	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3	28	29
07:00	3	12	25	8	1	0	0	0	0	0	0	0	0	0	0	49	26	29
08:00	0	0	9	2	1	0	0	0	0	0	0	0	0	0	0	12	27	31
09:00	0	0	6	3	0	0	0	0	0	0	0	0	0	0	0	9	27	29
10:00	0	1	3	4	0	0	0	0	0	0	0	0	0	0	0	8	28	29
11:00	0	1	6	1	0	0	0	0	0	0	0	0	0	0	0	8	24	28
12 PM	1	1	7	2	0	0	0	0	0	0	0	0	0	0	0	11	25	28
13:00	1	1	3	6	0	0	0	0	0	0	0	0	0	0	0	11	28	29
14:00	7	23	14	1	0	0	0	0	0	0	0	0	0	0	0	45	22	24
15:00	1	1	10	12	1	0	0	0	0	0	0	0	0	0	0	25	28	29
16:00	2	2	14	12	1	0	0	0	0	0	0	0	0	0	0	31	28	29
17:00	0	1	13	10	1	0	0	0	0	0	0	0	0	0	0	25	28	29
18:00	1	3	5	11	2	0	1	0	0	0	0	0	0	0	0	23	29	34
19:00	0	1	2	4	1	0	0	0	0	0	0	0	0	0	0	8	29	32
20:00	1	0	2	6	2	0	0	0	0	0	0	0	0	0	0	11	30	33
21:00	1	1	3	2	0	0	0	0	0	0	0	0	0	0	0	7	27	29
22:00	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	3	28	29
23:00	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	2	28	29
Total	18	48	127	90	10	0	1	0	0	0	0	0	0	0	0	294		
Percent	6.1%	16.3%	43.2%	30.6%	3.4%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	07:00	07:00	07:00	07:00											07:00		
Vol.	3	12	25	8	1											49		
PM Peak	14:00	14:00	14:00	15:00	18:00		18:00									14:00		
Vol.	7	23	14	12	2		1									45		
Grand Total	18	48	127	90	10	0	1	0	0	0	0	0	0	0	0	294		
Percent	6.1%	16.3%	43.2%	30.6%	3.4%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 17 MPH
50th Percentile : 23 MPH
85th Percentile : 28 MPH
95th Percentile : 29 MPH

Statistics

10 MPH Pace Speed : 21-30 MPH
Number in Pace : 217
Percent in Pace : 73.8%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%
Mean Speed(Average) : 23 MPH

All Traffic Data Services
www.alltrafficdata.net

Date Start: 22-Oct-20

Site Code: 5

Station ID: 5

PONDEROSA DR W.O. WINDFLOWER WAY

WB

Start Time	1 15	16 20	21 25	26 30	31 35	36 40	41 45	46 50	51 55	56 60	61 65	66 70	71 75	76 999	Total	85th Percent	95th Percent
10/22/20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
01:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
02:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
03:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	29	29
04:00	0	0	1	2	0	0	0	0	0	0	0	0	0	0	3	28	29
05:00	0	0	3	0	0	0	0	0	0	0	0	0	0	0	3	24	24
06:00	0	1	6	3	0	0	0	0	0	0	0	0	0	0	10	27	29
07:00	15	42	20	0	0	0	0	0	0	0	0	0	0	0	77	22	24
08:00	0	5	8	2	0	0	0	0	0	0	0	0	0	0	15	24	28
09:00	0	2	4	0	0	0	0	0	0	0	0	0	0	0	6	23	24
10:00	0	6	7	2	0	0	0	0	0	0	0	0	0	0	15	24	28
11:00	0	3	2	1	0	0	0	0	0	0	0	0	0	0	6	25	28
12 PM	0	3	6	5	0	0	0	0	0	0	0	0	0	0	14	27	29
13:00	0	6	8	0	0	0	0	0	0	0	0	0	0	0	14	23	24
14:00	11	22	6	0	0	0	0	0	0	0	0	0	0	0	39	20	23
15:00	2	5	8	1	0	0	0	0	0	0	0	0	0	0	16	24	25
16:00	1	10	7	2	0	0	0	0	0	0	0	0	0	0	20	24	27
17:00	1	6	8	1	1	0	0	0	0	0	0	0	0	0	17	24	30
18:00	1	1	8	1	0	0	0	0	0	0	0	0	0	0	11	24	27
19:00	0	1	5	4	0	0	0	0	0	0	0	0	0	0	10	28	29
20:00	1	1	3	0	1	0	0	0	0	0	0	0	0	0	6	30	33
21:00	0	2	3	2	0	0	0	0	0	0	0	0	0	0	7	27	29
22:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	*	*
23:00	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	24	24
Total	32	116	114	27	2	0	0	0	0	0	0	0	0	0	291		
Percent	11.0%	39.9%	39.2%	9.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			
AM Peak	07:00	07:00	07:00	06:00											07:00		
Vol.	15	42	20	3											77		
PM Peak	14:00	14:00	13:00	12:00	17:00										14:00		
Vol.	11	22	8	5	1										39		
Grand Total	32	116	114	27	2	0	0	0	0	0	0	0	0	0	291		
Percent	11.0%	39.9%	39.2%	9.3%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%			

15th Percentile : 15 MPH
50th Percentile : 19 MPH
85th Percentile : 24 MPH
95th Percentile : 27 MPH

Statistics 10 MPH Pace Speed : 16-25 MPH
 Number in Pace : 230
 Percent in Pace : 79.0%
Number of Vehicles > 55 MPH : 0
Percent of Vehicles > 55 MPH : 0.0%
Mean Speed(Average) : 20 MPH

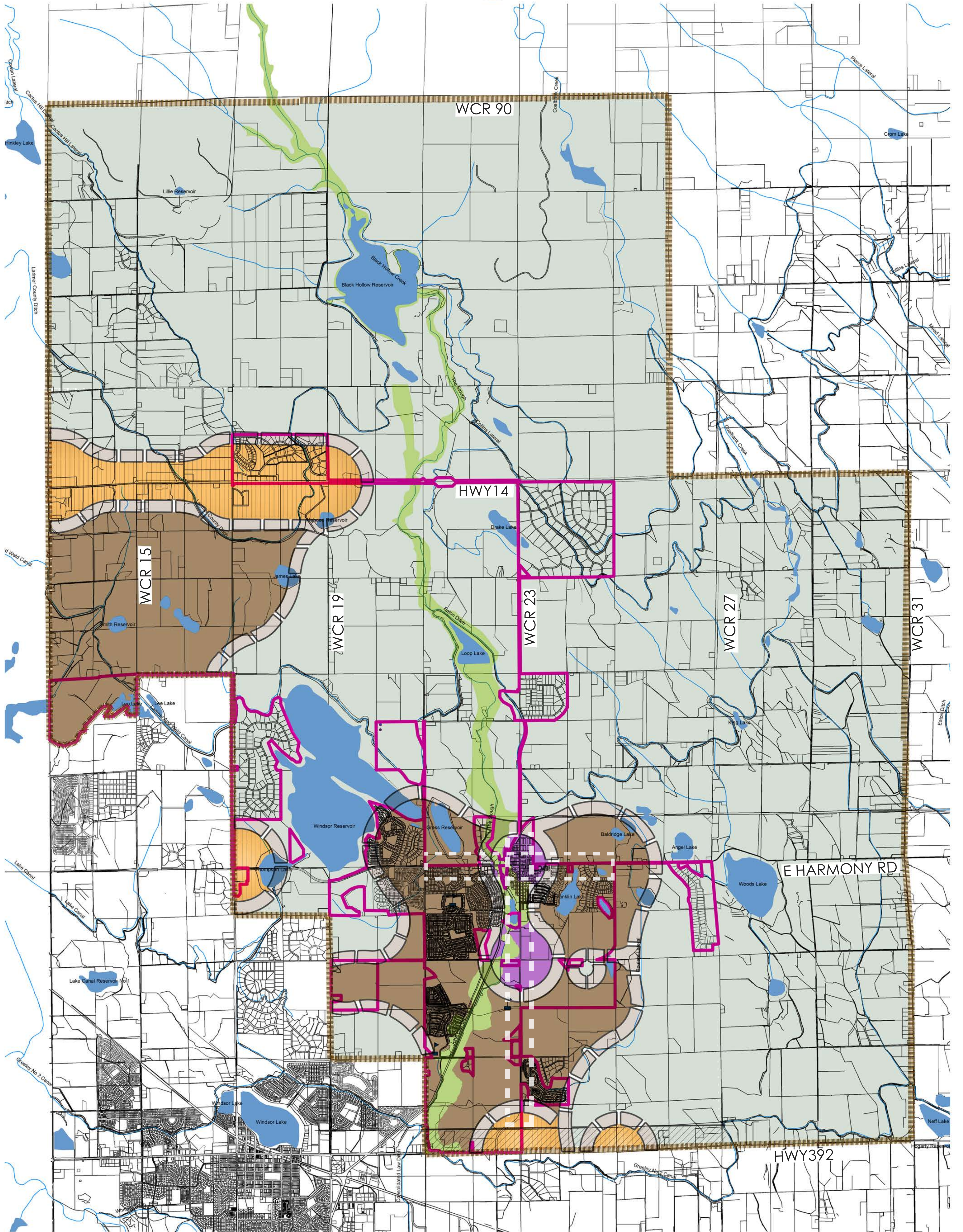
APPENDIX C

CRASH DATA

Date	Crash ID	Time	Location	Posted speed	Number Injuries	Injury Severity	Number	ADT (CDOT OTIS)	ADT (Side Street)	ADT	Accident Rate	Rank
5/2/19	191051	15:50	10039 Hwy 14	65	3	Driver #1 -Evident non-incapacitating:						
4/7/19	190744	19:30	1018 Mahogany Way	25	0	Passenger Veh #1-Evident non-incapacitating:						
5/10/19	191152	17:00	1035 Mahogany Way	25	0	Driver #2-Complaint of injury						
3/19/19	19-469	16:20	10971 CR 80	35	1	Driver #1 -Complaint of injury						
1/24/19	190062	14:45	1599 Sierra Plaza St	15	0							
9/13/19	193154	15:05	230 Castle Dr	25	0							
2/9/19	190151	17:30	278 Mt Harvard Ave	15	0							
6/10/19	191525	13:00	312 1st St	25	0							
6/17/19	191624A	9:20	33646 WCR 23	45	0							
1/25/19	190070	10:00	502 Aspen Grove Way	25	0							
10/24/19	193719	16:30	91 Grays Ln	25	0							
9/20/19	193246	7:40	9320 Hwy 14	65	0							
7/17/19	192208	11:00	CO CR 19 and Horse Shoe Bend	35	0							
2/7/19	190139	12:25	CR 80 and Hilltop Cir	35	0							
11/15/19	194041	18:06	Hwy 14 & WCR 23	65	0							
2/4/19	190120	14:04	Hwy 14 and CR 23	65	1	Driver #2 -Evident non-incapacitating	2	8100	1500	9600	0.57	5
6/11/19	191537	20:45	Hwy 14 and MM 145	65	0							
2/6/19	190133	15:25	Hwy 14 and MM 146	65	1	Driver #1 -Evident non-incapacitating						
11/25/19	194193	18:20	Hwy 14 and MM 146.5	65	0							
8/10/19	192669	20:05	Hwy 14 and WCR 19	65	0							
11/19/19	194105	13:00	Hwy 14 and WCR 19	65	2	Driver #1 -Evident non-incapacitating:						
12/14/19	194433	6:00	Hwy 14 and WCR 19	65	0	Passenger Veh #1-Evident non-incapacitating	3			10000	0.82	
12/14/19	194435	13:59	Hwy 14 and WCR 21	65	0		1			8500	0.32	
2/26/19	190249	3:38	Hwy 14 MM 145	65	0							
12/4/19	194264	5:52	Hwy 14 and Hwy 257	65	0							
9/20/19	193247	7:40	Hwy 257 and Hwy 14	65	0		2	5100	8500	13600	0.40	7
7/24/19	192349	17:04	Hwy 257 and MM 15.25	65	1	Driver #1 -Complaint of injury						
4/11/09	190808	12:14	Hwy 257 and WCR 76	55	1	Driver #2 -Evident non-incapacitating	1			5000	0.55	
9/17/19	193198	6:30	Monterrey Valley Pkwy and Vista Plaza St	25	0							
3/27/19	190602	12:45	Mt Belford and Audubon	25	0							
5/14/19	191220	21:53	W/B Hwy 14 and MM 145	65	0							
12/9/19	194354	17:55	CR 21 and CR 70	40	0							
8/1/19	192494	12:48	WCR 21 and WCR 70	45	1	Driver #1 -Evident non-incapacitating						
10/10/19	193512	7:49	WCR 21 and WCR 70	35	0		3			6007	1.37	1
7/26/19	192390	11:57	WCR 23 and Harvest Moon	35	0							
3/17/19	19-0421	4:00	WCR 23 and CO 392	45	0							
3/7/19	19330	11:00	WCR 23 and Hwy 392	35	0		6	8500	1918	10418	1.58	
6/17/19	191624	9:20	WCR 23 and Old WCR 23	45	0							
1/18/19	19-000045	23:57	WCR 23 and WCR 76	45	0		1					
1/11/19	2019-0022	15:00	WCR 23 and WCR 76 1/2	45	0		1					
2/25/19	190241	7:23	WCR 41 and WCR 21	45	1	Passenger Veh #1-Complaint of injury						
7/3/19	191927	12:30	WCR 70 and WCR 23	45	0							
9/25/19	193322	7:18	WCR 70 and WCR 23	45	1	Driver #2 Evident-incapacitating	2			4288	1.28	3
6/8/19	191509	16:15	WCR 72 and Audubon Blvd	35	2	Driver #1 -Evident non-incapacitating:						
4/11/19	190806	9:00	WCR 72 and WCR 23	35	0	Passenger Veh #1-Evident non-incapacitating:						
8/29/19	192924	15:49	WCR 23 and WCR 72	40	0		2			4076	1.34	2
9/23/19	193299	15:38	WCR 74 and Hwy 257	55	0		7	5100	13628	18728	1.02	
8/15/19	192733	7:58	WCR 74 and Mantjac St	35	1	Driver #1 -Complaint of injury						
11/22/19	194153	7:19	WCR 21 and WCR 74	40	0							
10/19/19	193662	3:13	WCR 74 and WCR 21	35	0							
12/16/19	194470	17:19	WCR 74 and WCR 21	35	0		3			9790	0.84	4
7/23/19	192317	5:30	9227 WCR 74 (GW Trail)	45	1	Driver #1 Evident-incapacitating						
8/30/19	192932	6:50	WCR 74 at 9227 WCR 74 (GW Trail)	55	0		2					
7/29/19	192448	13:30	WCR 80 and Hilltop Rd	35	1	Driver #1 -Evident non-incapacitating						
1/1/20	200004	12:49	12498 WCR 74	45	0							
1/9/20	200017	17:53	9000 Block Hwy 14	65	3	Driver #1 -Complaint of injury: Passenger Veh						
1/17/20	200024	15:20	Foxtail WCR 74	25	0	#1-Evident non-incapacitating: Passenger Veh						
1/28/20	200039	8:46	Hwy 14 and WCR 23	65	0	#1-Complaint of injury						
2/5/20	200047	18:45	Hwy 257 and MM 15	65	0							
2/12/20	200059	22:39	San Miguel Dr and WCR 23	45	2	Driver #1 -Evident non-incapacitating: Driver						
3/11/20	200101	12:10	WCR 74 and Timber Ridge Pkwy	35	0	#2 -Evident non-incapacitating						
3/28/20	200116	4:30	WCR 76 1/2 and WCR 21	45	0							
4/28/20	200167	11:30	Hwy 257 MM15	65	0							
5/2/20	200177	15:19	Hwy 14 and WCR 19	65	0							

APPENDIX D

LAND USE DATA



LEGEND

- | | | | |
|------------------------|--|---|--|
| Growth Management Area | Town Boundary | Severance Greenway Corridor | Transition Area Between Zoning Districts |
| Streams | Rural Residential Conservation/Agriculture | E Harmony Road and 1st Street Corridor Planning Areas | |
| Lakes | Suburban Perimeter | | |
| Schools | Development Node and Restricted Industrial | | |
| Parcels | Town Core | | |
| Roads | | | |

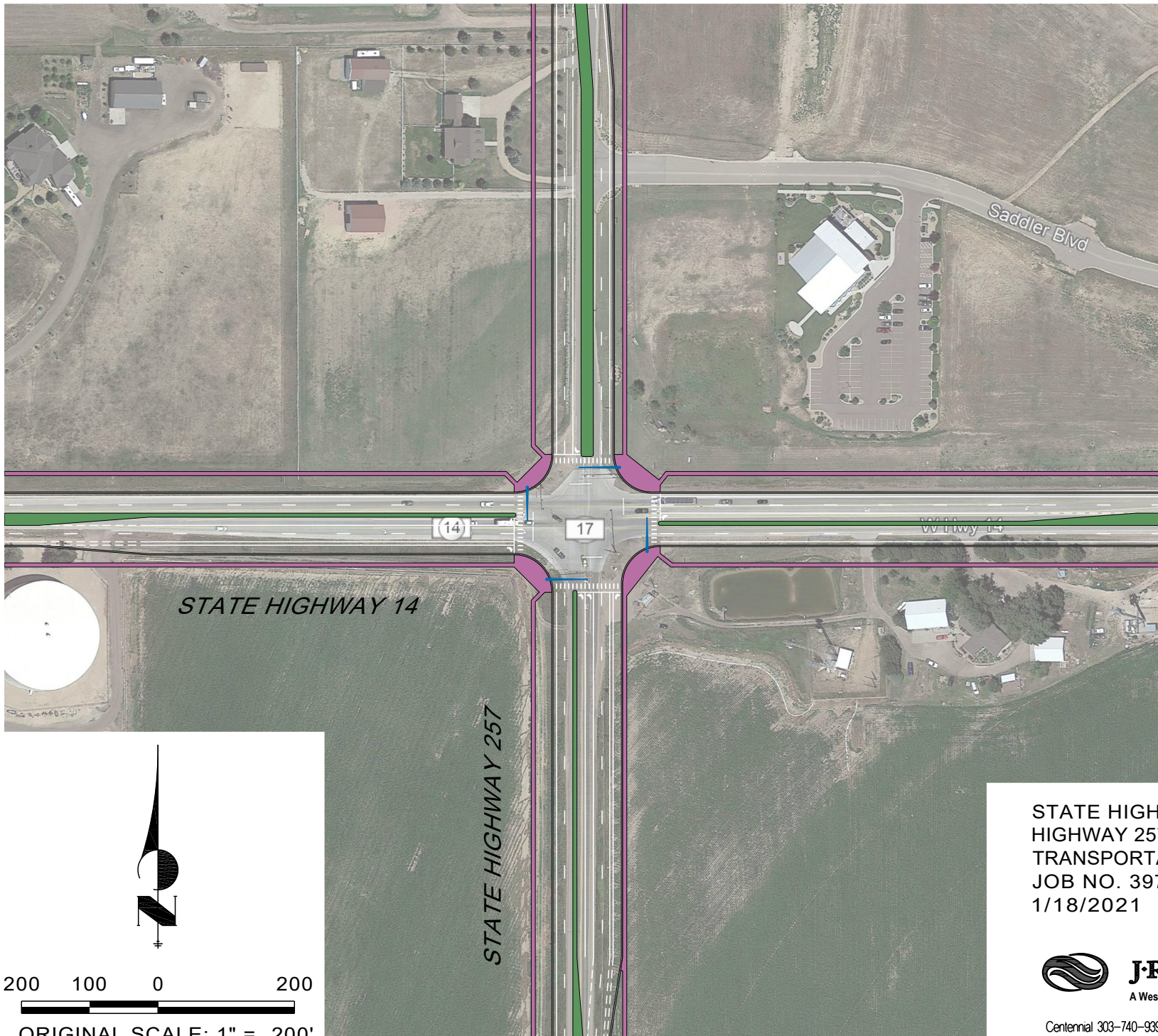
FUTURE LAND USE MAP

5.4.20

TAZ	Population	Households	Residential Units	Workers	Jobs
75	164	62	65	92	335
76	591	240	270	287	480
77	276	100	107	133	135
612	958	364	412	446	339
613	561	226	236	298	66
614	918	363	359	469	164
617	2642	890	898	1348	113
619	2275	1000	1320	1043	479
620	1629	685	725	772	349
625	702	254	258	349	142
626	182	70	77	107	36
628	2264	872	1214	1120	94
629	409	153	154	223	267
630	5176	1943	4965	2596	994
631	4911	1995	4613	2417	619
639	25	7	8	10	12
640	945	343	343	491	988
641	1713	650	182	858	1399
642	1309	500	335	673	1138
643	10129	4495	4585	5522	824
644	7396	2816	3094	3698	546
645	53	20	20	23	0
1086	87	44	44	47	9
1087	181	75	79	97	184
2035	191	72	73	81	15
2036	185	57	57	82	13
2037	220	68	67	83	42
2106	64	28	28	36	87
2107	10080	4160	4175	5358	530
2108	4930	2029	4783	2387	751
2114	51	20	20	17	10
2123	10	3	3	3	0
2125	52	20	20	29	5
2332	7	6	7	5	176
2333	551	177	189	244	142
2334	365	147	165	186	347
2335	575	224	245	290	0
2336	166	77	103	93	0
2470	122	46	48	52	86
2480	910	364	1583	455	208
2481	1213	471	2501	606	249
2482	246	92	99	129	31
2483	66	22	24	31	23
2484	1364	614	791	627	218
2487	45	16	17	21	128
2488	1029	407	446	505	197
2489	645	233	250	313	150
2490	2427	900	906	1314	48

APPENDIX E

INTERSECTION CONCEPTS

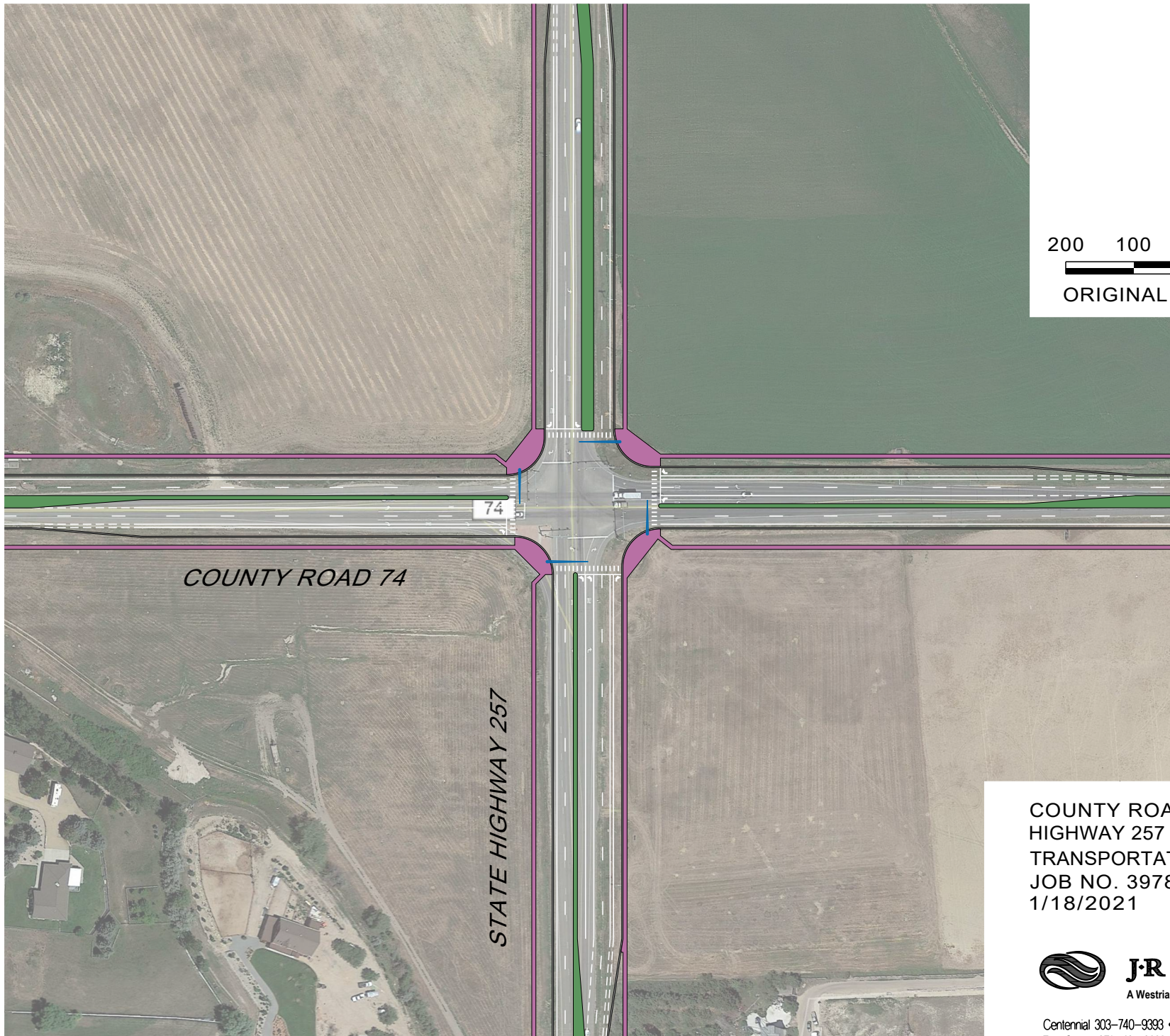


STATE HIGHWAY 14 & STATE
HIGHWAY 257 INTERSECTION
TRANSPORTATION PLAN
JOB NO. 39781.00
1/18/2021



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Fort Collins 970-491-9888 • www.jrengineering.com



200 100 0 200



ORIGINAL SCALE: 1" = 200'

COUNTY ROAD 74

STATE HIGHWAY 257

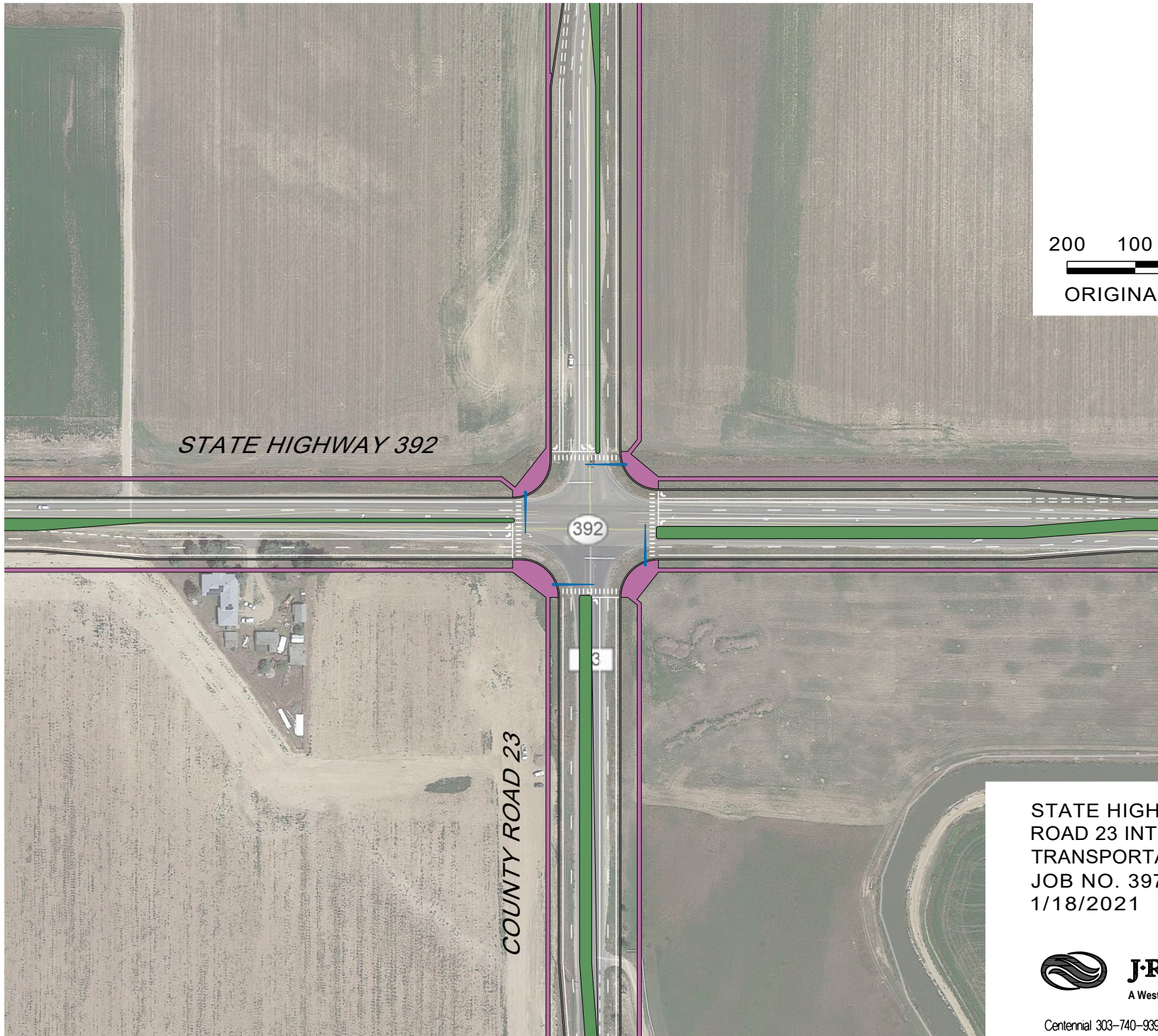
COUNTY ROAD 74 & STATE
HIGHWAY 257 INTERSECTION
TRANSPORTATION PLAN
JOB NO. 39781.00
1/18/2021



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200 100 0 200



ORIGINAL SCALE: 1" = 200'

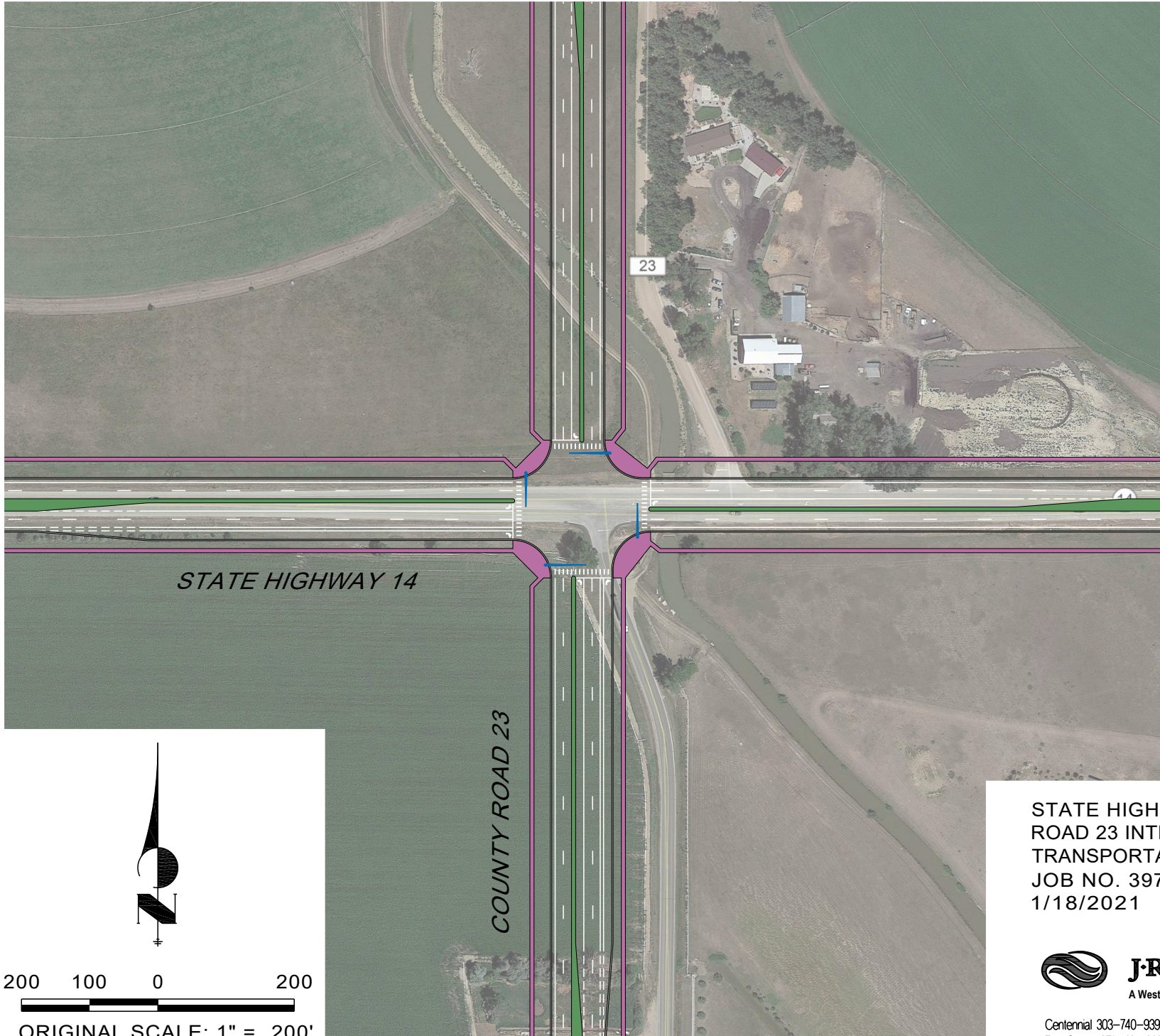
STATE HIGHWAY 392 & COUNTY
ROAD 23 INTERSECTION
TRANSPORTATION PLAN
JOB NO. 39781.00
1/18/2021



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STATE HIGHWAY 14 & COUNTY
ROAD 23 INTERSECTION
TRANSPORTATION PLAN
JOB NO. 39781.00
1/18/2021



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APPENDIX F

RANGE VIEW ELEMENTARY IMPROVEMENTS

MEMORANDUM



To: Mitch Nelson and Abdul Barzak

From: Eli Farney, PE, PTOE

Date: October 20, 2020

Subject: Range View Elementary – Improvements to Perimeter Streets

Based on previous meetings with the Town, site observations and drone video footage, there are traffic operational issues on the perimeter streets around Range View Elementary School. Specifically, traffic congestion was being experienced along Finch Drive and Ptarmigan Street during school drop-off and pickup times. Based on the issues and receiving positive feedback from the neighboring homeowners, the Town has informally converted the Finch and Ptarmigan to one-way operation. Finch is currently running in the eastbound direction, and Ptarmigan is running in the southbound direction. No signage or striping was installed.

The Town asked JR Engineering (JR) to review the current one-way operation. JR reviewed the operation and supports the decision. This memo summarizes the recommended signage and striping improvements to be implemented along Finch and Ptarmigan. The signage and striping will permanently convert the streets to one-ways and will be in compliance with the MUTCD. This memo also includes recommended crosswalk striping and optional improvements along the other perimeter streets.

Conversion to One-ways

- Recommended signage and striping improvements are included on the attached signage and striping plan. Please see attached plan for details. The plan includes signage and striping for a school loading lane.
- Conflicting signage and striping should be removed along northbound Ptarmigan and westbound Finch.

Crosswalk Application

- Consider 2'x8' crosswalk markings for the intersections along the perimeter streets. Please see attached signage and striping plan for details.
- The existing stop bars on the adjacent roads seem to be placed in the appropriate location as they are set back adequately to not inhibit views of pedestrians in the intersection.

Additional Improvements, Policies or Programs to Consider

- Sidewalks with high pedestrian use, such as near a school should be built to a width of 5 feet.
- A "Walk Audit" should be considered to ensure the existing sidewalks are in good condition and that any existing landscaping is not blocking views of pedestrians, vehicles and signage.

- The pedestrian crossing sign along southbound Ptarmigan is partially blocked (see photo to right). This is likely only an issue when the tree has leaves.
- Consider additional signage that states this area is within a school zone and to watch for pedestrians.
- Install school speed limit signage and flashing beacon along eastbound Ponderosa Drive when the street is extended west in the future.
- Community building activity
 - To help create additional awareness and education around pedestrian safety and access to the school, consider a "Paint the Pavement" project to highlight an intersection. This outreach event is an opportunity to teach school age children how to cross the street safely and reinforce the appropriate place to cross by painting the intersection. See below photo from previous projects.



Feel free to contact me at efarney@jrengineering.com or 303-267-6183 if you have any questions or comments.

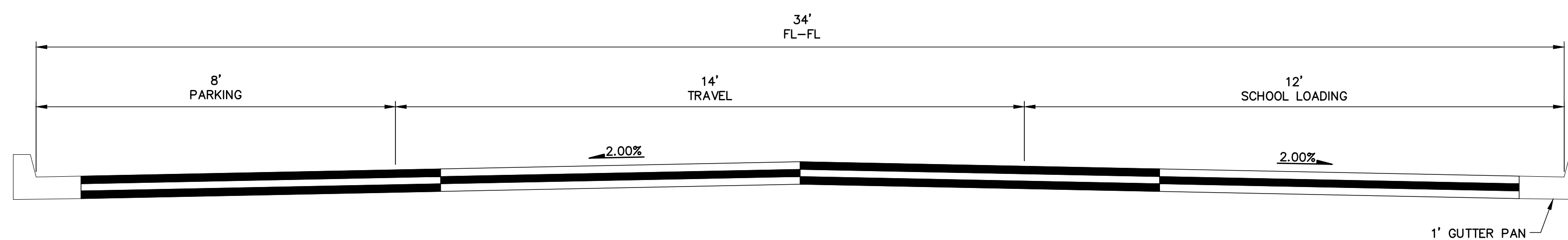
Attachments:

Signage and Striping Plan



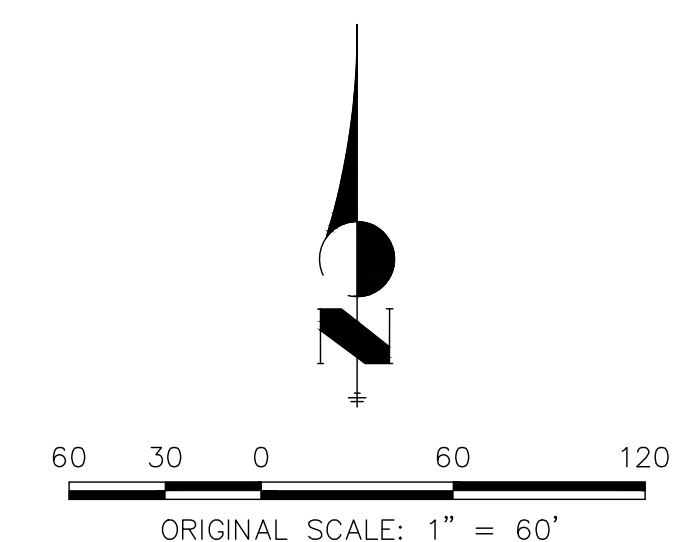
NOTE

REMOVE ALL CONFLICTING SIGNAGE AND STRIPING ALONG
NORTHBOUND PTARMIGAN AND WESTBOUND FINCH.




LOOKING EAST ON FINCH AND SOUTH ON PTARMIGAN

SCALE: 1"=2'



Know what's **below**.
Call before you dig.

SEVERANCE TRANSPORTATION PLAN	H-SCALE	1"=60'	No.	REVISION	BY	DATE	PREPARED FOR
	V-SCALE	N/A					
	DATE	SHEET _ DATE					
	DESIGNED BY	CRB					
	DRAWN BY	CRB					
SIGNAGE AND STRIPING PLAN	CHECKED BY						CLIENT_NAME
							CLIENT_INFO_1
							CLIENT_INFO_2
							CLIENT_INFO_3
							CLIENT_INFO_4
							CLIENT_INFO_5
<div>J.R. ENGINEERING A Westrian Company</div> <div>Central 303-740-9393 • Colorado Springs 719-593-2593 Fort Collins 970-491-9888 • www.jrengineering.com</div>							
UNTIL SUCH TIME AS DRAWINGS ARE APPROVED BY THE APPROPRIATE REVIEWING AGENCIES, JR ENGINEERING APPROVES THEIR USE FOR THE PROJECTS DESIGNATED BY WRITTEN AUTHORIZATION.							
JOB NO.	39781.00						

APPENDIX G

PARK CROSSWALK AND SIGNAGE IMPROVEMENTS

Specific park improvements were identified in collaboration with Town Staff:

1. Tailholt HOA Playground
 - a. Crosswalk at intersection of Harvest Moon Drive & 3rd Street
 - b. 2 Playground warning signs*
2. Hidden Valley Parkway Playground
 - a. 2 Playground warning signs*
3. Hidden Valley Parkway Playground – Granite Pass
 - a. Crosswalk at intersection of Ouzel Falls Road & Avery Plaza Street
 - b. Crosswalk at intersection of Avery Plaza Street & Granite Pass Parkway
 - c. 2 Playground warning signs*
4. Overlook Playground
 - a. Crosswalk at intersection of Gore Range Drive & Audubon Boulevard
 - b. Crosswalk at intersection of Gore Range Drive & Mt Bross Avenue
 - c. Crosswalk at intersection of Mt Bross Avenue & Ellingwood Point Drive
 - d. Crosswalk at intersection of Ptarmigan Street & Ellingwood Point Drive
 - e. Crosswalk at intersection of El Diente Avenue & Ellingwood Point Drive
 - f. Crosswalk at intersection of Audubon Boulevard & Ellingwood Point Drive
 - g. 3 Playground warning signs*
5. Summit View Playground
 - a. Crosswalk at intersection of Summit View Road & Audubon Boulevard
 - b. Crosswalk at intersection of Mt Evans Street & Audubon Boulevard
 - c. Crosswalk at intersection of Mt Evans Street & Snowmass Drive
 - d. Crosswalk at intersection of Summit View Road & Snowmass Drive
 - e. Crosswalk at intersection of Summit View Road & Keystone Drive
 - f. 3 Playground warning signs*
6. Severance Shores Playground
 - a. Crosswalk at intersection of Shoreview Parkway & Bright View Lane
 - b. 2 Playground warning signs*
7. Hunters Crossing Playground
 - a. 2 Playground warning signs*
8. Karen Suman Playground
 - a. Crosswalk at intersection of Timber Ridge Parkway & Pinon Pine Drive
 - b. Crosswalk at intersection of Pinon Pine Drive & Foxtail Way
 - c. 3 Playground warning signs*
9. Bridle Hill
 - a. 2 Playground warning signs*

* Add Playground warning signs (W15-1) at least 100 feet ahead of park per MUTCD.

APPENDIX H

POCKET PARK CONCEPT



- 1 DUMPSTER
- 2 PORTABLE TOILET
- 3 BIKE RACKS
- 4 PUBLIC TRAIL
- 5 PLAYGROUND
- 6 PICNIC AREA
- 7 BENCHES





- 1 BIKE RACKS
- 2 PLAYGROUND
- 3 PICNIC AREA
- 4 BENCHES
- 5 PUBLIC TRAIL
- 6 RAILROAD AVENUE

APPENDIX I

OPINIONS OF PROBABLE COSTS

Severance Transportation Plan
Estimate of Conceptual Costs
Connect Ponderosa Drive with WCR 21
as a Suburban Collector (± 0.20 Miles)

					Date Prepared:	October 30, 2020	#1
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY	\$ 16.00	3,755	\$	60,080	
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	2,809	\$	84,270	12-Inch Depth
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	2,065	\$	247,800	8" Depth - Widening / 2" Overlay - Existing
4	Curb and Gutter	LF	\$ 30.00	2,112	\$	63,360	Includes Outside Edge C&G
5	Concrete Sidewalk	SY	\$ 50.00	1,408	\$	70,400	6-Foot Attached (Both Sides)
6	Traffic Signal	Each	\$ 400,000	-	\$	-	
7	Landscaping	SF	\$ 4.00	-	\$	-	
8					\$	-	
9					\$	-	
10					\$	-	
Total Major Items					\$	526,000	
					% of Major Item Cost		
Total Major Items						\$526,000	A
Drainage / Utilities		% of A		8.0%		\$43,000	B-1
Environmental		% of A		5.0%		\$27,000	B-2
Miscellaneous		% of A		1.5%		\$8,000	B-3
Mobilization		% of A		9.3%		\$49,000	B-4
Removals / Resets		% of A		3.7%		\$20,000	B-5
Roadway		% of A		0.4%		\$3,000	B-6
Signing and Striping		% of A		2.1%		\$12,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$16,000	B-8
Traffic Control / Detour		% of A		9.6%		\$51,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$6,000	B-10
Bid Force Accounts		% of A		1.4%		\$8,000	B-11
Total of Bid Construction Items						\$769,000	B
Force Account - Misc.		% of B		2.6%		\$20,000	C-1
Minor Contract Revisions		% of B		4.0%		\$31,000	C-2
Total of Bid Construction Items & Force Account Items						\$820,000	C
Design Engineering		% of C		8.0%		\$66,000	D-1
Construction Engineering		% of C		17.0%		\$140,000	D-2
Total Design & Construction Cost						\$1,026,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$11,000	E-2
Total Project, Design & Construction Cost						\$1,037,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$5,000	F
Total Project Cost Estimate						\$1,042,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Connect WCR 72 between WCR 19 and
WCR 21 as a Rural Arterial (± 1.00 Miles)

					Date Prepared:	October 30, 2020	#2
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	17,209	\$ 275,344		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	12,640	\$ 379,200	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	9,293	\$ 1,115,160	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	-	\$ -	No C&G, only shoulder	
5	Concrete Sidewalk	SY	\$ 50.00	7,040	\$ 352,000	6-Foot Attached (Both Sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 2,122,000		
					% of Major Item Cost		
Total Major Items						\$2,122,000	A
Drainage / Utilities		% of A			8.0%	\$170,000	B-1
Environmental		% of A			5.0%	\$107,000	B-2
Miscellaneous		% of A			1.5%	\$32,000	B-3
Mobilization		% of A			9.3%	\$198,000	B-4
Removals / Resets		% of A			3.7%	\$79,000	B-5
Roadway		% of A			0.4%	\$9,000	B-6
Signing and Striping		% of A			2.1%	\$45,000	B-7
Traffic / Lighting / ITS		% of A			3.0%	\$64,000	B-8
Traffic Control / Detour		% of A			9.6%	\$204,000	B-9
Structural - Minor Structures / Walls		% of A			1.0%	\$22,000	B-10
Bid Force Accounts		% of A			1.4%	\$30,000	B-11
Total of Bid Construction Items						\$3,082,000	B
Force Account - Misc.		% of B			2.6%	\$81,000	C-1
Minor Contract Revisions		% of B			4.0%	\$124,000	C-2
Total of Bid Construction Items & Force Account Items						\$3,287,000	C
Design Engineering		% of C			8.0%	\$263,000	D-1
Construction Engineering		% of C			17.0%	\$559,000	D-2
Total Design & Construction Cost						\$4,109,000	D
Right-of-Way		0	SF		\$5.00	\$0	E-1
Utilities		% of D			1.0%	\$42,000	E-2
Total Project, Design & Construction Cost						\$4,151,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2			2.0%	\$18,000	F
Total Project Cost Estimate						\$4,169,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Connect missing portions of WCR 27 between
SH 14 and E Harmony Road as a Rural Arterial (± 1.36 Miles)

					Date Prepared:	October 30, 2020	#3
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	23,467	\$ 375,472		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	17,237	\$ 517,110	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	12,672	\$ 1,520,640	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	-	\$ -	No C&G, only shoulder	
5	Concrete Sidewalk	SY	\$ 50.00	9,600	\$ 480,000	6-Foot Attached (Both Sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 2,894,000		
					% of Major Item Cost		
Total Major Items						\$2,894,000	A
Drainage / Utilities			% of A		8.0%	\$232,000	B-1
Environmental			% of A		5.0%	\$145,000	B-2
Miscellaneous			% of A		1.5%	\$44,000	B-3
Mobilization			% of A		9.3%	\$270,000	B-4
Removals / Resets			% of A		3.7%	\$108,000	B-5
Roadway			% of A		0.4%	\$12,000	B-6
Signing and Striping			% of A		2.1%	\$61,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$87,000	B-8
Traffic Control / Detour			% of A		9.6%	\$278,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$29,000	B-10
Bid Force Accounts			% of A		1.4%	\$41,000	B-11
Total of Bid Construction Items						\$4,201,000	B
Force Account - Misc.			% of B		2.6%	\$110,000	C-1
Minor Contract Revisions			% of B		4.0%	\$169,000	C-2
Total of Bid Construction Items & Force Account Items						\$4,480,000	C
Design Engineering			% of C		8.0%	\$359,000	D-1
Construction Engineering			% of C		17.0%	\$762,000	D-2
Total Design & Construction Cost						\$5,601,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$57,000	E-2
Total Project, Design & Construction Cost						\$5,658,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$24,000	F
Total Project Cost Estimate						\$5,682,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Connect WCR 21 between SH 14 and
WCR 80 as a Rural Arterial (± 1.00 Miles)

					Date Prepared:	October 30, 2020	#4
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	17,209	\$ 275,344		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	12,640	\$ 379,200	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	9,293	\$ 1,115,160	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	-	\$ -	No C&G, only shoulder	
5	Concrete Sidewalk	SY	\$ 50.00	7,040	\$ 352,000	6-Foot Attached (Both Sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 2,122,000		
					% of Major Item Cost		
Total Major Items						\$2,122,000	A
Drainage / Utilities			% of A		8.0%	\$170,000	B-1
Environmental			% of A		5.0%	\$107,000	B-2
Miscellaneous			% of A		1.5%	\$32,000	B-3
Mobilization			% of A		9.3%	\$198,000	B-4
Removals / Resets			% of A		3.7%	\$79,000	B-5
Roadway			% of A		0.4%	\$9,000	B-6
Signing and Striping			% of A		2.1%	\$45,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$64,000	B-8
Traffic Control / Detour			% of A		9.6%	\$204,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$22,000	B-10
Bid Force Accounts			% of A		1.4%	\$30,000	B-11
Total of Bid Construction Items						\$3,082,000	B
Force Account - Misc.			% of B		2.6%	\$81,000	C-1
Minor Contract Revisions			% of B		4.0%	\$124,000	C-2
Total of Bid Construction Items & Force Account Items						\$3,287,000	C
Design Engineering			% of C		8.0%	\$263,000	D-1
Construction Engineering			% of C		17.0%	\$559,000	D-2
Total Design & Construction Cost						\$4,109,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$42,000	E-2
Total Project, Design & Construction Cost						\$4,151,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$18,000	F
Total Project Cost Estimate						\$4,169,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Pave all gravel roads within Town Limits (± 0.59 Miles)

					Date Prepared:	October 30, 2020	#5
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	8,768	\$ 140,288			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	6,214	\$ 186,420	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	4,569	\$ 548,280	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	-	\$ -			
5	Concrete Sidewalk	SY \$ 50.00	-	\$ -			
6	Traffic Signal	Each \$ 400,000	-	\$ -			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 875,000			
					% of Major Item Cost		
Total Major Items						\$875,000	A
Drainage / Utilities		% of A		8.0%		\$70,000	B-1
Environmental		% of A		5.0%		\$44,000	B-2
Miscellaneous		% of A		1.5%		\$14,000	B-3
Mobilization		% of A		9.3%		\$82,000	B-4
Removals / Resets		% of A		3.7%		\$33,000	B-5
Roadway		% of A		0.4%		\$4,000	B-6
Signing and Striping		% of A		2.1%		\$19,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$27,000	B-8
Traffic Control / Detour		% of A		9.6%		\$84,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$9,000	B-10
Bid Force Accounts		% of A		1.4%		\$13,000	B-11
Total of Bid Construction Items						\$1,274,000	B
Force Account - Misc.		% of B		2.6%		\$34,000	C-1
Minor Contract Revisions		% of B		4.0%		\$51,000	C-2
Total of Bid Construction Items & Force Account Items						\$1,359,000	C
Design Engineering		% of C		8.0%		\$109,000	D-1
Construction Engineering		% of C		17.0%		\$232,000	D-2
Total Design & Construction Cost						\$1,700,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$17,000	E-2
Total Project, Design & Construction Cost						\$1,717,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$8,000	F
Total Project Cost Estimate						\$1,725,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Pave WCR 72 from WCR 21 and WCR 25 (± 2.00 Miles)

					Date Prepared:	October 30, 2020	#6
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	45,369	\$ 725,904			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	35,112	\$ 1,053,360	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	25,813	\$ 3,097,560	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	21,120	\$ 633,600	Includes outside edge C&G		
5	Concrete Sidewalk	SY \$ 50.00	14,080	\$ 704,000	6-Foot Detached (both sides)		
6	Traffic Signal	Each \$ 400,000	-	\$ -			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 6,215,000			
					% of Major Item Cost		
Total Major Items						\$6,215,000	A
Drainage / Utilities		% of A		8.0%		\$498,000	B-1
Environmental		% of A		5.0%		\$311,000	B-2
Miscellaneous		% of A		1.5%		\$94,000	B-3
Mobilization		% of A		9.3%		\$578,000	B-4
Removals / Resets		% of A		3.7%		\$230,000	B-5
Roadway		% of A		0.4%		\$25,000	B-6
Signing and Striping		% of A		2.1%		\$131,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$187,000	B-8
Traffic Control / Detour		% of A		9.6%		\$597,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$63,000	B-10
Bid Force Accounts		% of A		1.4%		\$88,000	B-11
Total of Bid Construction Items						\$9,017,000	B
Force Account - Misc.		% of B		2.6%		\$235,000	C-1
Minor Contract Revisions		% of B		4.0%		\$361,000	C-2
Total of Bid Construction Items & Force Account Items						\$9,613,000	C
Design Engineering		% of C		8.0%		\$770,000	D-1
Construction Engineering		% of C		17.0%		\$1,635,000	D-2
Total Design & Construction Cost						\$12,018,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$121,000	E-2
Total Project, Design & Construction Cost						\$12,139,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$51,000	F
Total Project Cost Estimate						\$12,190,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Pave all existing segments of WCR 27 between
SH 14 and E Harmony Road (± 2.70 Miles)

					Date Prepared:	October 30, 2020	#7
Item				Unit Cost	Quantity	Extended Cost	Notes
1	Earthwork	CY	\$ 16.00	46,464	\$	743,424	
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	34,129	\$	1,023,870	12-Inch Depth
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	25,091	\$	3,010,920	8" Depth - Widening / 2" Overlay - Existing
4	Curb and Gutter	LF	\$ 30.00	-	\$	-	No C&G, only shoulder
5	Concrete Sidewalk	SY	\$ 50.00	19,008	\$	950,400	6-Foot Detached (both sides)
6	Traffic Signal	Each	\$ 400,000	-	\$	-	
7	Landscaping	SF	\$ 4.00	-	\$	-	
8					\$	-	
9					\$	-	
10					\$	-	
Total Major Items					\$	5,729,000	
					% of Major Item Cost		
Total Major Items						\$5,729,000	A
Drainage / Utilities					% of A	8.0%	\$459,000 B-1
Environmental					% of A	5.0%	\$287,000 B-2
Miscellaneous					% of A	1.5%	\$86,000 B-3
Mobilization					% of A	9.3%	\$533,000 B-4
Removals / Resets					% of A	3.7%	\$212,000 B-5
Roadway					% of A	0.4%	\$23,000 B-6
Signing and Striping					% of A	2.1%	\$121,000 B-7
Traffic / Lighting / ITS					% of A	3.0%	\$172,000 B-8
Traffic Control / Detour					% of A	9.6%	\$550,000 B-9
Structural - Minor Structures / Walls					% of A	1.0%	\$58,000 B-10
Bid Force Accounts					% of A	1.4%	\$81,000 B-11
Total of Bid Construction Items						\$8,311,000	B
Force Account - Misc.					% of B	2.6%	\$217,000 C-1
Minor Contract Revisions					% of B	4.0%	\$333,000 C-2
Total of Bid Construction Items & Force Account Items						\$8,861,000	C
Design Engineering					% of C	8.0%	\$709,000 D-1
Construction Engineering					% of C	17.0%	\$1,507,000 D-2
Total Design & Construction Cost						\$11,077,000	D
Right-of-Way					0 SF	\$5.00	\$0 E-1
Utilities					% of D	1.0%	\$111,000 E-2
Total Project, Design & Construction Cost						\$11,188,000	E
Contingency (Engineering, ROW & Utilities Only)					% of D1, D2, E1, E2	2.0%	\$47,000 F
Total Project Cost Estimate						\$11,235,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Pave WCR 25 from E Harmony Road to SH 392 (± 3.00 Miles)

					Date Prepared:	October 30, 2020	#8
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	68,053	\$ 1,088,848			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	52,668	\$ 1,580,040	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	38,720	\$ 4,646,400	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	31,680	\$ 950,400	Includes outside edge C&G		
5	Concrete Sidewalk	SY \$ 50.00	21,120	\$ 1,056,000	6-Foot Detached (both sides)		
6	Traffic Signal	Each \$ 400,000	-	\$ -			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 9,322,000			
					% of Major Item Cost		
Total Major Items						\$9,322,000	A
Drainage / Utilities		% of A		8.0%		\$746,000	B-1
Environmental		% of A		5.0%		\$467,000	B-2
Miscellaneous		% of A		1.5%		\$140,000	B-3
Mobilization		% of A		9.3%		\$867,000	B-4
Removals / Resets		% of A		3.7%		\$345,000	B-5
Roadway		% of A		0.4%		\$38,000	B-6
Signing and Striping		% of A		2.1%		\$196,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$280,000	B-8
Traffic Control / Detour		% of A		9.6%		\$895,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$94,000	B-10
Bid Force Accounts		% of A		1.4%		\$131,000	B-11
Total of Bid Construction Items						\$13,521,000	B
Force Account - Misc.		% of B		2.6%		\$352,000	C-1
Minor Contract Revisions		% of B		4.0%		\$541,000	C-2
Total of Bid Construction Items & Force Account Items						\$14,414,000	C
Design Engineering		% of C		8.0%		\$1,154,000	D-1
Construction Engineering		% of C		17.0%		\$2,451,000	D-2
Total Design & Construction Cost						\$18,019,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$181,000	E-2
Total Project, Design & Construction Cost						\$18,200,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$76,000	F
Total Project Cost Estimate						\$18,276,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Pave WCR 70 from WCR 25 to WCR 27 (± 1.00 Miles)

					Date Prepared:	October 30, 2020	#9
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	17,209	\$ 275,344			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	12,640	\$ 379,200	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	9,293	\$ 1,115,160	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	-	\$ -	No C&G, only shoulder		
5	Concrete Sidewalk	SY \$ 50.00	7,040	\$ 352,000	6-Foot Detached (both sides)		
6	Traffic Signal	Each \$ 400,000	-	\$ -			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 2,122,000			
					% of Major Item Cost		
Total Major Items						\$2,122,000	A
Drainage / Utilities		% of A		8.0%		\$170,000	B-1
Environmental		% of A		5.0%		\$107,000	B-2
Miscellaneous		% of A		1.5%		\$32,000	B-3
Mobilization		% of A		9.3%		\$198,000	B-4
Removals / Resets		% of A		3.7%		\$79,000	B-5
Roadway		% of A		0.4%		\$9,000	B-6
Signing and Striping		% of A		2.1%		\$45,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$64,000	B-8
Traffic Control / Detour		% of A		9.6%		\$204,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$22,000	B-10
Bid Force Accounts		% of A		1.4%		\$30,000	B-11
Total of Bid Construction Items						\$3,082,000	B
Force Account - Misc.		% of B		2.6%		\$81,000	C-1
Minor Contract Revisions		% of B		4.0%		\$124,000	C-2
Total of Bid Construction Items & Force Account Items						\$3,287,000	C
Design Engineering		% of C		8.0%		\$263,000	D-1
Construction Engineering		% of C		17.0%		\$559,000	D-2
Total Design & Construction Cost						\$4,109,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$42,000	E-2
Total Project, Design & Construction Cost						\$4,151,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$18,000	F
Total Project Cost Estimate						\$4,169,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Pave WCR 72 from WCR 25 to WCR 27 (± 1.00 Miles)

					Date Prepared:	October 30, 2020	#10
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	17,209	\$ 275,344			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	12,640	\$ 379,200	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	9,293	\$ 1,115,160	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	-	\$ -	No C&G, only shoulder		
5	Concrete Sidewalk	SY \$ 50.00	7,040	\$ 352,000	6-Foot Detached (both sides)		
6	Traffic Signal	Each \$ 400,000	-	\$ -			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 2,122,000			
					% of Major Item Cost		
Total Major Items						\$2,122,000	A
Drainage / Utilities		% of A		8.0%		\$170,000	B-1
Environmental		% of A		5.0%		\$107,000	B-2
Miscellaneous		% of A		1.5%		\$32,000	B-3
Mobilization		% of A		9.3%		\$198,000	B-4
Removals / Resets		% of A		3.7%		\$79,000	B-5
Roadway		% of A		0.4%		\$9,000	B-6
Signing and Striping		% of A		2.1%		\$45,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$64,000	B-8
Traffic Control / Detour		% of A		9.6%		\$204,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$22,000	B-10
Bid Force Accounts		% of A		1.4%		\$30,000	B-11
Total of Bid Construction Items						\$3,082,000	B
Force Account - Misc.		% of B		2.6%		\$81,000	C-1
Minor Contract Revisions		% of B		4.0%		\$124,000	C-2
Total of Bid Construction Items & Force Account Items						\$3,287,000	C
Design Engineering		% of C		8.0%		\$263,000	D-1
Construction Engineering		% of C		17.0%		\$559,000	D-2
Total Design & Construction Cost						\$4,109,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$42,000	E-2
Total Project, Design & Construction Cost						\$4,151,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$18,000	F
Total Project Cost Estimate						\$4,169,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Pave WCR 21 from Fox Ridge to WCR 76.5 (± 1.00 Miles)

					Date Prepared:	October 30, 2020	#11
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	17,500	\$ 280,000		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	13,000	\$ 390,000	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	10,000	\$ 1,200,000	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	-	\$ -	No C&G, only shoulder	
5	Concrete Sidewalk	SY	\$ 50.00	7,000	\$ 350,000	6-Foot Detached (both sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 2,220,000		
					% of Major Item Cost		
Total Major Items						\$2,220,000	A
Drainage / Utilities		% of A		8.0%		\$178,000	B-1
Environmental		% of A		5.0%		\$111,000	B-2
Miscellaneous		% of A		1.5%		\$34,000	B-3
Mobilization		% of A		9.3%		\$207,000	B-4
Removals / Resets		% of A		3.7%		\$83,000	B-5
Roadway		% of A		0.4%		\$9,000	B-6
Signing and Striping		% of A		2.1%		\$47,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$67,000	B-8
Traffic Control / Detour		% of A		9.6%		\$214,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$23,000	B-10
Bid Force Accounts		% of A		1.4%		\$32,000	B-11
Total of Bid Construction Items						\$3,225,000	B
Force Account - Misc.		% of B		2.6%		\$84,000	C-1
Minor Contract Revisions		% of B		4.0%		\$129,000	C-2
Total of Bid Construction Items & Force Account Items						\$3,438,000	C
Design Engineering		% of C		8.0%		\$276,000	D-1
Construction Engineering		% of C		17.0%		\$585,000	D-2
Total Design & Construction Cost						\$4,299,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$43,000	E-2
Total Project, Design & Construction Cost						\$4,342,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$19,000	F
Total Project Cost Estimate						\$4,361,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Pave WCR 21 from WCR 76.5 to WCR 80 (± 1.50 Miles)

					Date Prepared:	October 30, 2020	#12
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	26,000	\$ 416,000		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	19,500	\$ 585,000	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	14,500	\$ 1,740,000	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	-	\$ -	No C&G, only shoulder	
5	Concrete Sidewalk	SY	\$ 50.00	10,500	\$ 525,000	6-Foot Detached (both sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 3,266,000		
					% of Major Item Cost		
Total Major Items						\$3,266,000	A
Drainage / Utilities			% of A		8.0%	\$262,000	B-1
Environmental			% of A		5.0%	\$164,000	B-2
Miscellaneous			% of A		1.5%	\$49,000	B-3
Mobilization			% of A		9.3%	\$304,000	B-4
Removals / Resets			% of A		3.7%	\$121,000	B-5
Roadway			% of A		0.4%	\$14,000	B-6
Signing and Striping			% of A		2.1%	\$69,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$98,000	B-8
Traffic Control / Detour			% of A		9.6%	\$314,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$33,000	B-10
Bid Force Accounts			% of A		1.4%	\$46,000	B-11
Total of Bid Construction Items						\$4,740,000	B
Force Account - Misc.			% of B		2.6%	\$124,000	C-1
Minor Contract Revisions			% of B		4.0%	\$190,000	C-2
Total of Bid Construction Items & Force Account Items						\$5,054,000	C
Design Engineering			% of C		8.0%	\$405,000	D-1
Construction Engineering			% of C		17.0%	\$860,000	D-2
Total Design & Construction Cost						\$6,319,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$64,000	E-2
Total Project, Design & Construction Cost						\$6,383,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$27,000	F
Total Project Cost Estimate						\$6,410,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Pave WCR 76 from WCR 23 to WCR 27 (± 2.00 Miles)

					Date Prepared:	October 30, 2020	#13
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	34,418	\$ 550,688			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	25,281	\$ 758,430	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	18,586	\$ 2,230,320	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	-	\$ -	No C&G, only shoulder		
5	Concrete Sidewalk	SY \$ 50.00	14,080	\$ 704,000	6-Foot Detached (both sides)		
6	Traffic Signal	Each \$ 400,000	-	\$ -			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 4,244,000			
					% of Major Item Cost		
Total Major Items						\$4,244,000	A
Drainage / Utilities		% of A		8.0%		\$340,000	B-1
Environmental		% of A		5.0%		\$213,000	B-2
Miscellaneous		% of A		1.5%		\$64,000	B-3
Mobilization		% of A		9.3%		\$395,000	B-4
Removals / Resets		% of A		3.7%		\$158,000	B-5
Roadway		% of A		0.4%		\$17,000	B-6
Signing and Striping		% of A		2.1%		\$90,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$128,000	B-8
Traffic Control / Detour		% of A		9.6%		\$408,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$43,000	B-10
Bid Force Accounts		% of A		1.4%		\$60,000	B-11
Total of Bid Construction Items						\$6,160,000	B
Force Account - Misc.		% of B		2.6%		\$161,000	C-1
Minor Contract Revisions		% of B		4.0%		\$247,000	C-2
Total of Bid Construction Items & Force Account Items						\$6,568,000	C
Design Engineering		% of C		8.0%		\$526,000	D-1
Construction Engineering		% of C		17.0%		\$1,117,000	D-2
Total Design & Construction Cost						\$8,211,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$83,000	E-2
Total Project, Design & Construction Cost						\$8,294,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$35,000	F
Total Project Cost Estimate						\$8,329,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Pave WCR 78 from WCR 13 to WCR 21 (± 4.10 Miles)

					Date Prepared:	October 30, 2020	#14
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	70,000	\$ 1,120,000			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	52,000	\$ 1,560,000	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	38,000	\$ 4,560,000	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	-	\$ -	No C&G, only shoulder		
5	Concrete Sidewalk	SY \$ 50.00	29,000	\$ 1,450,000	6-Foot Detached (both sides)		
6	Traffic Signal	Each \$ 400,000	-	\$ -			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 8,690,000			
					% of Major Item Cost		
Total Major Items						\$8,690,000	A
Drainage / Utilities		% of A		8.0%		\$696,000	B-1
Environmental		% of A		5.0%		\$435,000	B-2
Miscellaneous		% of A		1.5%		\$131,000	B-3
Mobilization		% of A		9.3%		\$809,000	B-4
Removals / Resets		% of A		3.7%		\$322,000	B-5
Roadway		% of A		0.4%		\$35,000	B-6
Signing and Striping		% of A		2.1%		\$183,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$261,000	B-8
Traffic Control / Detour		% of A		9.6%		\$835,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$87,000	B-10
Bid Force Accounts		% of A		1.4%		\$122,000	B-11
Total of Bid Construction Items						\$12,606,000	B
Force Account - Misc.		% of B		2.6%		\$328,000	C-1
Minor Contract Revisions		% of B		4.0%		\$505,000	C-2
Total of Bid Construction Items & Force Account Items						\$13,439,000	C
Design Engineering		% of C		8.0%		\$1,076,000	D-1
Construction Engineering		% of C		17.0%		\$2,285,000	D-2
Total Design & Construction Cost						\$16,800,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$168,000	E-2
Total Project, Design & Construction Cost						\$16,968,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$71,000	F
Total Project Cost Estimate						\$17,039,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Pave WCR 78 from WCR 23 to WCR 27 (± 2.00 Miles)

					Date Prepared:	October 30, 2020	#15
Item				Unit Cost	Quantity	Extended Cost	Notes
1	Earthwork	CY	\$ 16.00	34,418	\$	550,688	
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	25,281	\$	758,430	12-Inch Depth
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	18,586	\$	2,230,320	8" Depth - Widening / 2" Overlay - Existing
4	Curb and Gutter	LF	\$ 30.00	-	\$	-	No C&G, only shoulder
5	Concrete Sidewalk	SY	\$ 50.00	14,080	\$	704,000	6-Foot Detached (both sides)
6	Traffic Signal	Each	\$ 400,000	-	\$	-	
7	Landscaping	SF	\$ 4.00	-	\$	-	
8					\$	-	
9					\$	-	
10					\$	-	
Total Major Items					\$	4,244,000	
					% of Major Item Cost		
Total Major Items						\$4,244,000	A
Drainage / Utilities					% of A	8.0%	\$340,000 B-1
Environmental					% of A	5.0%	\$213,000 B-2
Miscellaneous					% of A	1.5%	\$64,000 B-3
Mobilization					% of A	9.3%	\$395,000 B-4
Removals / Resets					% of A	3.7%	\$158,000 B-5
Roadway					% of A	0.4%	\$17,000 B-6
Signing and Striping					% of A	2.1%	\$90,000 B-7
Traffic / Lighting / ITS					% of A	3.0%	\$128,000 B-8
Traffic Control / Detour					% of A	9.6%	\$408,000 B-9
Structural - Minor Structures / Walls					% of A	1.0%	\$43,000 B-10
Bid Force Accounts					% of A	1.4%	\$60,000 B-11
Total of Bid Construction Items						\$6,160,000	B
Force Account - Misc.					% of B	2.6%	\$161,000 C-1
Minor Contract Revisions					% of B	4.0%	\$247,000 C-2
Total of Bid Construction Items & Force Account Items						\$6,568,000	C
Design Engineering					% of C	8.0%	\$526,000 D-1
Construction Engineering					% of C	17.0%	\$1,117,000 D-2
Total Design & Construction Cost						\$8,211,000	D
Right-of-Way					0 SF	\$5.00	\$0 E-1
Utilities					% of D	1.0%	\$83,000 E-2
Total Project, Design & Construction Cost						\$8,294,000	E
Contingency (Engineering, ROW & Utilities Only)					% of D1, D2, E1, E2	2.0%	\$35,000 F
Total Project Cost Estimate						\$8,329,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Pave WCR 80 from WCR 19 to WCR 27 (± 4.00 Miles)

					Date Prepared:	October 30, 2020	#16
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	68,836	\$ 1,101,376			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	50,561	\$ 1,516,830	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	37,171	\$ 4,460,520	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	-	\$ -	No C&G, only shoulder		
5	Concrete Sidewalk	SY \$ 50.00	28,160	\$ 1,408,000	6-Foot Detached (both sides)		
6	Traffic Signal	Each \$ 400,000	-	\$ -			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 8,487,000			
					% of Major Item Cost		
Total Major Items						\$8,487,000	A
Drainage / Utilities		% of A		8.0%		\$679,000	B-1
Environmental		% of A		5.0%		\$425,000	B-2
Miscellaneous		% of A		1.5%		\$128,000	B-3
Mobilization		% of A		9.3%		\$790,000	B-4
Removals / Resets		% of A		3.7%		\$315,000	B-5
Roadway		% of A		0.4%		\$34,000	B-6
Signing and Striping		% of A		2.1%		\$179,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$255,000	B-8
Traffic Control / Detour		% of A		9.6%		\$815,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$85,000	B-10
Bid Force Accounts		% of A		1.4%		\$119,000	B-11
Total of Bid Construction Items						\$12,311,000	B
Force Account - Misc.		% of B		2.6%		\$321,000	C-1
Minor Contract Revisions		% of B		4.0%		\$493,000	C-2
Total of Bid Construction Items & Force Account Items						\$13,125,000	C
Design Engineering		% of C		8.0%		\$1,050,000	D-1
Construction Engineering		% of C		17.0%		\$2,232,000	D-2
Total Design & Construction Cost						\$16,407,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$165,000	E-2
Total Project, Design & Construction Cost						\$16,572,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$69,000	F
Total Project Cost Estimate						\$16,641,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Pave WCR 80.5 from SH 257 to WCR 19 (± 1.00 Miles)

					Date Prepared:	October 30, 2020	#17
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	17,209	\$ 275,344			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	12,640	\$ 379,200	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	9,293	\$ 1,115,160	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	-	\$ -	No C&G, only shoulder		
5	Concrete Sidewalk	SY \$ 50.00	7,040	\$ 352,000	6-Foot Detached (both sides)		
6	Traffic Signal	Each \$ 400,000	-	\$ -			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 2,122,000			
					% of Major Item Cost		
Total Major Items						\$2,122,000	A
Drainage / Utilities		% of A		8.0%		\$170,000	B-1
Environmental		% of A		5.0%		\$107,000	B-2
Miscellaneous		% of A		1.5%		\$32,000	B-3
Mobilization		% of A		9.3%		\$198,000	B-4
Removals / Resets		% of A		3.7%		\$79,000	B-5
Roadway		% of A		0.4%		\$9,000	B-6
Signing and Striping		% of A		2.1%		\$45,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$64,000	B-8
Traffic Control / Detour		% of A		9.6%		\$204,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$22,000	B-10
Bid Force Accounts		% of A		1.4%		\$30,000	B-11
Total of Bid Construction Items						\$3,082,000	B
Force Account - Misc.		% of B		2.6%		\$81,000	C-1
Minor Contract Revisions		% of B		4.0%		\$124,000	C-2
Total of Bid Construction Items & Force Account Items						\$3,287,000	C
Design Engineering		% of C		8.0%		\$263,000	D-1
Construction Engineering		% of C		17.0%		\$559,000	D-2
Total Design & Construction Cost						\$4,109,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$42,000	E-2
Total Project, Design & Construction Cost						\$4,151,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$18,000	F
Total Project Cost Estimate						\$4,169,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Pave WCR 19 from WCR 82.5 to WCR 80.5 (± 1.17 Miles)

					Date Prepared:	October 30, 2020	#18
Item				Unit Cost	Quantity	Extended Cost	Notes
1	Earthwork	CY	\$ 16.00	20,136	\$	322,176	
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	14,790	\$	443,700	12-Inch Depth
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	10,873	\$	1,304,760	8" Depth - Widening / 2" Overlay - Existing
4	Curb and Gutter	LF	\$ 30.00	-	\$	-	No C&G, only shoulder
5	Concrete Sidewalk	SY	\$ 50.00	8,237	\$	411,850	6-Foot Detached (both sides)
6	Traffic Signal	Each	\$ 400,000	-	\$	-	
7	Landscaping	SF	\$ 4.00	-	\$	-	
8					\$	-	
9					\$	-	
10					\$	-	
Total Major Items					\$	2,483,000	
					% of Major Item Cost		
Total Major Items						\$2,483,000	A
Drainage / Utilities					% of A	8.0%	\$199,000 B-1
Environmental					% of A	5.0%	\$125,000 B-2
Miscellaneous					% of A	1.5%	\$38,000 B-3
Mobilization					% of A	9.3%	\$231,000 B-4
Removals / Resets					% of A	3.7%	\$92,000 B-5
Roadway					% of A	0.4%	\$10,000 B-6
Signing and Striping					% of A	2.1%	\$53,000 B-7
Traffic / Lighting / ITS					% of A	3.0%	\$75,000 B-8
Traffic Control / Detour					% of A	9.6%	\$239,000 B-9
Structural - Minor Structures / Walls					% of A	1.0%	\$25,000 B-10
Bid Force Accounts					% of A	1.4%	\$35,000 B-11
Total of Bid Construction Items						\$3,605,000	B
Force Account - Misc.					% of B	2.6%	\$94,000 C-1
Minor Contract Revisions					% of B	4.0%	\$145,000 C-2
Total of Bid Construction Items & Force Account Items						\$3,844,000	C
Design Engineering					% of C	8.0%	\$308,000 D-1
Construction Engineering					% of C	17.0%	\$654,000 D-2
Total Design & Construction Cost						\$4,806,000	D
Right-of-Way					0 SF	\$5.00	\$0 E-1
Utilities					% of D	1.0%	\$49,000 E-2
Total Project, Design & Construction Cost						\$4,855,000	E
Contingency (Engineering, ROW & Utilities Only)					% of D1, D2, E1, E2	2.0%	\$21,000 F
Total Project Cost Estimate						\$4,876,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Pave WCR 21 from WCR 82.5 to SH 14 (± 0.50 Miles)

					Date Prepared:	October 30, 2020	#19
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	8,604	\$ 137,664		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	6,320	\$ 189,600	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	4,646	\$ 557,520	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	-	\$ -	No C&G, only shoulder	
5	Concrete Sidewalk	SY	\$ 50.00	3,520	\$ 176,000	6-Foot Detached (both sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 1,061,000		
					% of Major Item Cost		
Total Major Items						\$1,061,000	A
Drainage / Utilities			% of A		8.0%	\$85,000	B-1
Environmental			% of A		5.0%	\$54,000	B-2
Miscellaneous			% of A		1.5%	\$16,000	B-3
Mobilization			% of A		9.3%	\$99,000	B-4
Removals / Resets			% of A		3.7%	\$40,000	B-5
Roadway			% of A		0.4%	\$5,000	B-6
Signing and Striping			% of A		2.1%	\$23,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$32,000	B-8
Traffic Control / Detour			% of A		9.6%	\$102,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$11,000	B-10
Bid Force Accounts			% of A		1.4%	\$15,000	B-11
Total of Bid Construction Items						\$1,543,000	B
Force Account - Misc.			% of B		2.6%	\$41,000	C-1
Minor Contract Revisions			% of B		4.0%	\$62,000	C-2
Total of Bid Construction Items & Force Account Items						\$1,646,000	C
Design Engineering			% of C		8.0%	\$132,000	D-1
Construction Engineering			% of C		17.0%	\$280,000	D-2
Total Design & Construction Cost						\$2,058,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$21,000	E-2
Total Project, Design & Construction Cost						\$2,079,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$9,000	F
Total Project Cost Estimate						\$2,088,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Improve E. Harmony Road from WCR 21 to Mahogany Way/Immigrant Trail to a 4-
Lane Major Arterial (± 2.75 Miles)

					Date Prepared:	October 30, 2020	#20
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	62,382	\$ 998,112		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	48,279	\$ 1,448,370	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	35,493	\$ 4,259,160	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	29,040	\$ 871,200	Includes outside edge C&G	
5	Concrete Sidewalk	SY	\$ 50.00	19,360	\$ 968,000	6-Foot Detached (both sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 8,545,000		
					% of Major Item Cost		
Total Major Items						\$8,545,000	A
Drainage / Utilities			% of A		8.0%	\$684,000	B-1
Environmental			% of A		5.0%	\$428,000	B-2
Miscellaneous			% of A		1.5%	\$129,000	B-3
Mobilization			% of A		9.3%	\$795,000	B-4
Removals / Resets			% of A		3.7%	\$317,000	B-5
Roadway			% of A		0.4%	\$35,000	B-6
Signing and Striping			% of A		2.1%	\$180,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$257,000	B-8
Traffic Control / Detour			% of A		9.6%	\$821,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$86,000	B-10
Bid Force Accounts			% of A		1.4%	\$120,000	B-11
Total of Bid Construction Items						\$12,397,000	B
Force Account - Misc.			% of B		2.6%	\$323,000	C-1
Minor Contract Revisions			% of B		4.0%	\$496,000	C-2
Total of Bid Construction Items & Force Account Items						\$13,216,000	C
Design Engineering			% of C		8.0%	\$1,058,000	D-1
Construction Engineering			% of C		17.0%	\$2,247,000	D-2
Total Design & Construction Cost						\$16,521,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$166,000	E-2
Total Project, Design & Construction Cost						\$16,687,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$70,000	F
Total Project Cost Estimate						\$16,757,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Improve WCR 23 from Harvest Moon Drive to SH 392 to a 4-Lane Major Arterial (±
3.50 Miles)

					Date Prepared:	October 30, 2020	#21
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	79,396	\$ 1,270,336		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	61,446	\$ 1,843,380	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	45,173	\$ 5,420,760	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	36,960	\$ 1,108,800	Includes outside edge C&G	
5	Concrete Sidewalk	SY	\$ 50.00	24,640	\$ 1,232,000	6-Foot Detached (both sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 10,876,000		
					% of Major Item Cost		
Total Major Items						\$10,876,000	A
Drainage / Utilities		% of A			8.0%	\$871,000	B-1
Environmental		% of A			5.0%	\$544,000	B-2
Miscellaneous		% of A			1.5%	\$164,000	B-3
Mobilization		% of A			9.3%	\$1,012,000	B-4
Removals / Resets		% of A			3.7%	\$403,000	B-5
Roadway		% of A			0.4%	\$44,000	B-6
Signing and Striping		% of A			2.1%	\$229,000	B-7
Traffic / Lighting / ITS		% of A			3.0%	\$327,000	B-8
Traffic Control / Detour		% of A			9.6%	\$1,045,000	B-9
Structural - Minor Structures / Walls		% of A			1.0%	\$109,000	B-10
Bid Force Accounts		% of A			1.4%	\$153,000	B-11
Total of Bid Construction Items						\$15,777,000	B
Force Account - Misc.		% of B			2.6%	\$411,000	C-1
Minor Contract Revisions		% of B			4.0%	\$632,000	C-2
Total of Bid Construction Items & Force Account Items						\$16,820,000	C
Design Engineering		% of C			8.0%	\$1,346,000	D-1
Construction Engineering		% of C			17.0%	\$2,860,000	D-2
Total Design & Construction Cost						\$21,026,000	D
Right-of-Way		0	SF		\$5.00	\$0	E-1
Utilities		% of D			1.0%	\$211,000	E-2
Total Project, Design & Construction Cost						\$21,237,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2			2.0%	\$89,000	F
Total Project Cost Estimate						\$21,326,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Improve WCR 21 from the Windsor Reservoir
to SH 392 to a 2-Lane Minor Arterial (± 3.50 Miles)

					Date Prepared:	October 30, 2020	#22
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	79,396	\$ 1,270,336		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	61,446	\$ 1,843,380	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	45,173	\$ 5,420,760	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	36,960	\$ 1,108,800	Includes outside edge C&G	
5	Concrete Sidewalk	SY	\$ 50.00	24,640	\$ 1,232,000	6-Foot Detached (both sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 10,876,000		
					% of Major Item Cost		
Total Major Items						\$10,876,000	A
Drainage / Utilities			% of A		8.0%	\$871,000	B-1
Environmental			% of A		5.0%	\$544,000	B-2
Miscellaneous			% of A		1.5%	\$164,000	B-3
Mobilization			% of A		9.3%	\$1,012,000	B-4
Removals / Resets			% of A		3.7%	\$403,000	B-5
Roadway			% of A		0.4%	\$44,000	B-6
Signing and Striping			% of A		2.1%	\$229,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$327,000	B-8
Traffic Control / Detour			% of A		9.6%	\$1,045,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$109,000	B-10
Bid Force Accounts			% of A		1.4%	\$153,000	B-11
Total of Bid Construction Items						\$15,777,000	B
Force Account - Misc.			% of B		2.6%	\$411,000	C-1
Minor Contract Revisions			% of B		4.0%	\$632,000	C-2
Total of Bid Construction Items & Force Account Items						\$16,820,000	C
Design Engineering			% of C		8.0%	\$1,346,000	D-1
Construction Engineering			% of C		17.0%	\$2,860,000	D-2
Total Design & Construction Cost						\$21,026,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$211,000	E-2
Total Project, Design & Construction Cost						\$21,237,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$89,000	F
Total Project Cost Estimate						\$21,326,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Improve E. Harmony Road from SH 257 to WCR 21 to a 4-Lane Major Arterial (± 2.00 Miles)

					Date Prepared:	October 30, 2020	#23
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	35,000	\$ 560,000		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	25,000	\$ 750,000	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	19,000	\$ 2,280,000	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	-	\$ -	No C&G, only shoulder	
5	Concrete Sidewalk	SY	\$ 50.00	14,000	\$ 700,000	6-Foot Detached (both sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 4,290,000		
					% of Major Item Cost		
Total Major Items						\$4,290,000	A
Drainage / Utilities			% of A		8.0%	\$344,000	B-1
Environmental			% of A		5.0%	\$215,000	B-2
Miscellaneous			% of A		1.5%	\$65,000	B-3
Mobilization			% of A		9.3%	\$399,000	B-4
Removals / Resets			% of A		3.7%	\$159,000	B-5
Roadway			% of A		0.4%	\$18,000	B-6
Signing and Striping			% of A		2.1%	\$91,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$129,000	B-8
Traffic Control / Detour			% of A		9.6%	\$412,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$43,000	B-10
Bid Force Accounts			% of A		1.4%	\$61,000	B-11
Total of Bid Construction Items						\$6,226,000	B
Force Account - Misc.			% of B		2.6%	\$162,000	C-1
Minor Contract Revisions			% of B		4.0%	\$250,000	C-2
Total of Bid Construction Items & Force Account Items						\$6,638,000	C
Design Engineering			% of C		8.0%	\$532,000	D-1
Construction Engineering			% of C		17.0%	\$1,129,000	D-2
Total Design & Construction Cost						\$8,299,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$83,000	E-2
Total Project, Design & Construction Cost						\$8,382,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$35,000	F
Total Project Cost Estimate						\$8,417,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Improve E. Harmony Road from the eastern end of the Suburban Perimeter to WCR
27 to a 4-Lane Major Arterial (± 3.50 Miles)

					Date Prepared:	October 30, 2020	#24
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	50,000	\$ 800,000			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	25,000	\$ 750,000	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	30,000	\$ 3,600,000	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	-	\$ -	No C&G, only shoulder		
5	Concrete Sidewalk	SY \$ 50.00	-	\$ -			
6	Traffic Signal	Each \$ 400,000	-	\$ -			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 5,150,000			
					% of Major Item Cost		
Total Major Items						\$5,150,000	A
Drainage / Utilities		% of A		8.0%		\$412,000	B-1
Environmental		% of A		5.0%		\$258,000	B-2
Miscellaneous		% of A		1.5%		\$78,000	B-3
Mobilization		% of A		9.3%		\$479,000	B-4
Removals / Resets		% of A		3.7%		\$191,000	B-5
Roadway		% of A		0.4%		\$21,000	B-6
Signing and Striping		% of A		2.1%		\$109,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$155,000	B-8
Traffic Control / Detour		% of A		9.6%		\$495,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$52,000	B-10
Bid Force Accounts		% of A		1.4%		\$73,000	B-11
Total of Bid Construction Items						\$7,473,000	B
Force Account - Misc.		% of B		2.6%		\$195,000	C-1
Minor Contract Revisions		% of B		4.0%		\$299,000	C-2
Total of Bid Construction Items & Force Account Items						\$7,967,000	C
Design Engineering		% of C		8.0%		\$638,000	D-1
Construction Engineering		% of C		17.0%		\$1,355,000	D-2
Total Design & Construction Cost						\$9,960,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$100,000	E-2
Total Project, Design & Construction Cost						\$10,060,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$42,000	F
Total Project Cost Estimate						\$10,102,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Improve WCR 23 from the northern Growth Management boundary
to the northern end of the Town Core (± 4.00 Miles)

					Date Prepared:	October 30, 2020	#25
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	68,836	\$ 1,101,376			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	50,561	\$ 1,516,830	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	37,171	\$ 4,460,520	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	-	\$ -	No C&G, only shoulder		
5	Concrete Sidewalk	SY \$ 50.00	28,160	\$ 1,408,000	6-Foot Detached (both sides)		
6	Traffic Signal	Each \$ 400,000	-	\$ -			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 8,487,000			
					% of Major Item Cost		
Total Major Items					\$8,487,000	A	
Drainage / Utilities		% of A		8.0%	\$679,000	B-1	
Environmental		% of A		5.0%	\$425,000	B-2	
Miscellaneous		% of A		1.5%	\$128,000	B-3	
Mobilization		% of A		9.3%	\$790,000	B-4	
Removals / Resets		% of A		3.7%	\$315,000	B-5	
Roadway		% of A		0.4%	\$34,000	B-6	
Signing and Striping		% of A		2.1%	\$179,000	B-7	
Traffic / Lighting / ITS		% of A		3.0%	\$255,000	B-8	
Traffic Control / Detour		% of A		9.6%	\$815,000	B-9	
Structural - Minor Structures / Walls		% of A		1.0%	\$85,000	B-10	
Bid Force Accounts		% of A		1.4%	\$119,000	B-11	
Total of Bid Construction Items					\$12,311,000	B	
Force Account - Misc.		% of B		2.6%	\$321,000	C-1	
Minor Contract Revisions		% of B		4.0%	\$493,000	C-2	
Total of Bid Construction Items & Force Account Items					\$13,125,000	C	
Design Engineering		% of C		8.0%	\$1,050,000	D-1	
Construction Engineering		% of C		17.0%	\$2,232,000	D-2	
Total Design & Construction Cost					\$16,407,000	D	
Right-of-Way		0	SF	\$5.00	\$0	E-1	
Utilities		% of D		1.0%	\$165,000	E-2	
Total Project, Design & Construction Cost					\$16,572,000	E	
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%	\$69,000	F	
Total Project Cost Estimate					\$16,641,000	G	

Severance Transportation Plan
Estimate of Conceptual Costs
Improve WCR 19 from WCR 70 to E. Harmony Road to a 4-Lane Major Arterial (± 1.85 Miles)

					Date Prepared:	October 30, 2020	#26
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	31,836	\$ 509,376		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	23,385	\$ 701,550	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	17,192	\$ 2,063,040	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	-	\$ -	No C&G, only shoulder	
5	Concrete Sidewalk	SY	\$ 50.00	13,024	\$ 651,200	6-Foot Detached (both sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 3,926,000		
					% of Major Item Cost		
Total Major Items						\$3,926,000	A
Drainage / Utilities			% of A		8.0%	\$315,000	B-1
Environmental			% of A		5.0%	\$197,000	B-2
Miscellaneous			% of A		1.5%	\$59,000	B-3
Mobilization			% of A		9.3%	\$366,000	B-4
Removals / Resets			% of A		3.7%	\$146,000	B-5
Roadway			% of A		0.4%	\$16,000	B-6
Signing and Striping			% of A		2.1%	\$83,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$118,000	B-8
Traffic Control / Detour			% of A		9.6%	\$377,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$40,000	B-10
Bid Force Accounts			% of A		1.4%	\$55,000	B-11
Total of Bid Construction Items						\$5,698,000	B
Force Account - Misc.			% of B		2.6%	\$149,000	C-1
Minor Contract Revisions			% of B		4.0%	\$228,000	C-2
Total of Bid Construction Items & Force Account Items						\$6,075,000	C
Design Engineering			% of C		8.0%	\$486,000	D-1
Construction Engineering			% of C		17.0%	\$1,033,000	D-2
Total Design & Construction Cost						\$7,594,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$76,000	E-2
Total Project, Design & Construction Cost						\$7,670,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$32,000	F
Total Project Cost Estimate						\$7,702,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Improve WCR 27 from E. Harmony Road to SH 392 to a 2-Lane Major Arterial (± 3.00 Miles)

					Date Prepared:	October 30, 2020	#27
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	51,627	\$ 826,032		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	37,921	\$ 1,137,630	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	27,878	\$ 3,345,360	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	-	\$ -	No C&G, only shoulder	
5	Concrete Sidewalk	SY	\$ 50.00	21,120	\$ 1,056,000	6-Foot Detached (both sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 6,366,000		
					% of Major Item Cost		
Total Major Items						\$6,366,000	A
Drainage / Utilities		% of A		8.0%		\$510,000	B-1
Environmental		% of A		5.0%		\$319,000	B-2
Miscellaneous		% of A		1.5%		\$96,000	B-3
Mobilization		% of A		9.3%		\$593,000	B-4
Removals / Resets		% of A		3.7%		\$236,000	B-5
Roadway		% of A		0.4%		\$26,000	B-6
Signing and Striping		% of A		2.1%		\$134,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$191,000	B-8
Traffic Control / Detour		% of A		9.6%		\$612,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$64,000	B-10
Bid Force Accounts		% of A		1.4%		\$90,000	B-11
Total of Bid Construction Items						\$9,237,000	B
Force Account - Misc.		% of B		2.6%		\$241,000	C-1
Minor Contract Revisions		% of B		4.0%		\$370,000	C-2
Total of Bid Construction Items & Force Account Items						\$9,848,000	C
Design Engineering		% of C		8.0%		\$788,000	D-1
Construction Engineering		% of C		17.0%		\$1,675,000	D-2
Total Design & Construction Cost						\$12,311,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$124,000	E-2
Total Project, Design & Construction Cost						\$12,435,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$52,000	F
Total Project Cost Estimate						\$12,487,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Improve WCR 70 from WCR 19 to WCR 21 to a 2-Lane Major Arterial (± 1.00 Miles)

					Date Prepared:	October 30, 2020	#28
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	17,209	\$ 275,344			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	12,640	\$ 379,200	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	9,293	\$ 1,115,160	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	-	\$ -	No C&G, only shoulder		
5	Concrete Sidewalk	SY \$ 50.00	7,040	\$ 352,000	6-Foot Detached (both sides)		
6	Traffic Signal	Each \$ 400,000	-	\$ -			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 2,122,000			
					% of Major Item Cost		
Total Major Items						\$2,122,000	A
Drainage / Utilities		% of A		8.0%		\$170,000	B-1
Environmental		% of A		5.0%		\$107,000	B-2
Miscellaneous		% of A		1.5%		\$32,000	B-3
Mobilization		% of A		9.3%		\$198,000	B-4
Removals / Resets		% of A		3.7%		\$79,000	B-5
Roadway		% of A		0.4%		\$9,000	B-6
Signing and Striping		% of A		2.1%		\$45,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$64,000	B-8
Traffic Control / Detour		% of A		9.6%		\$204,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$22,000	B-10
Bid Force Accounts		% of A		1.4%		\$30,000	B-11
Total of Bid Construction Items						\$3,082,000	B
Force Account - Misc.		% of B		2.6%		\$81,000	C-1
Minor Contract Revisions		% of B		4.0%		\$124,000	C-2
Total of Bid Construction Items & Force Account Items						\$3,287,000	C
Design Engineering		% of C		8.0%		\$263,000	D-1
Construction Engineering		% of C		17.0%		\$559,000	D-2
Total Design & Construction Cost						\$4,109,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$42,000	E-2
Total Project, Design & Construction Cost						\$4,151,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$18,000	F
Total Project Cost Estimate						\$4,169,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Improve WCR 70 from WCR 21 to WCR 25 to a 2-Lane Major Arterial (± 2.05 Miles)

					Date Prepared:	October 30, 2020	#29
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	46,503	\$ 744,048			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	35,990	\$ 1,079,700	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	26,459	\$ 3,175,080	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	21,648	\$ 649,440	Includes outside edge C&G		
5	Concrete Sidewalk	SY \$ 50.00	14,432	\$ 721,600	6-Foot Detached (both sides)		
6	Traffic Signal	Each \$ 400,000	-	\$ -			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 6,370,000			
					% of Major Item Cost		
Total Major Items						\$6,370,000	A
Drainage / Utilities		% of A		8.0%		\$510,000	B-1
Environmental		% of A		5.0%		\$319,000	B-2
Miscellaneous		% of A		1.5%		\$96,000	B-3
Mobilization		% of A		9.3%		\$593,000	B-4
Removals / Resets		% of A		3.7%		\$236,000	B-5
Roadway		% of A		0.4%		\$26,000	B-6
Signing and Striping		% of A		2.1%		\$134,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$192,000	B-8
Traffic Control / Detour		% of A		9.6%		\$612,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$64,000	B-10
Bid Force Accounts		% of A		1.4%		\$90,000	B-11
Total of Bid Construction Items						\$9,242,000	B
Force Account - Misc.		% of B		2.6%		\$241,000	C-1
Minor Contract Revisions		% of B		4.0%		\$370,000	C-2
Total of Bid Construction Items & Force Account Items						\$9,853,000	C
Design Engineering		% of C		8.0%		\$789,000	D-1
Construction Engineering		% of C		17.0%		\$1,676,000	D-2
Total Design & Construction Cost						\$12,318,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$124,000	E-2
Total Project, Design & Construction Cost						\$12,442,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$52,000	F
Total Project Cost Estimate						\$12,494,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Improve WCR 80 from WCR 15 to SH 257 to a 2-Lane Minor Arterial (± 1.00 Miles)

					Date Prepared:	October 30, 2020	#30
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	17,209	\$ 275,344		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	12,640	\$ 379,200	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	9,293	\$ 1,115,160	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	-	\$ -	No C&G, only shoulder	
5	Concrete Sidewalk	SY	\$ 50.00	7,040	\$ 352,000	6-Foot Detached (both sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 2,122,000		
					% of Major Item Cost		
Total Major Items						\$2,122,000	A
Drainage / Utilities			% of A		8.0%	\$170,000	B-1
Environmental			% of A		5.0%	\$107,000	B-2
Miscellaneous			% of A		1.5%	\$32,000	B-3
Mobilization			% of A		9.3%	\$198,000	B-4
Removals / Resets			% of A		3.7%	\$79,000	B-5
Roadway			% of A		0.4%	\$9,000	B-6
Signing and Striping			% of A		2.1%	\$45,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$64,000	B-8
Traffic Control / Detour			% of A		9.6%	\$204,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$22,000	B-10
Bid Force Accounts			% of A		1.4%	\$30,000	B-11
Total of Bid Construction Items						\$3,082,000	B
Force Account - Misc.			% of B		2.6%	\$81,000	C-1
Minor Contract Revisions			% of B		4.0%	\$124,000	C-2
Total of Bid Construction Items & Force Account Items						\$3,287,000	C
Design Engineering			% of C		8.0%	\$263,000	D-1
Construction Engineering			% of C		17.0%	\$559,000	D-2
Total Design & Construction Cost						\$4,109,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$42,000	E-2
Total Project, Design & Construction Cost						\$4,151,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$18,000	F
Total Project Cost Estimate						\$4,169,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Improve WCR 15 from the northern GMA boundary to WCR 78 to a 2-Lane Minor
Arterial (± 2.50 Miles)

					Date Prepared:	October 30, 2020	#31
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	43,022	\$ 688,352		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	31,601	\$ 948,030	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	23,232	\$ 2,787,840	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	-	\$ -	No C&G, only shoulder	
5	Concrete Sidewalk	SY	\$ 50.00	17,600	\$ 880,000	6-Foot Detached (both sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 5,305,000		
					% of Major Item Cost		
Total Major Items						\$5,305,000	A
Drainage / Utilities			% of A		8.0%	\$425,000	B-1
Environmental			% of A		5.0%	\$266,000	B-2
Miscellaneous			% of A		1.5%	\$80,000	B-3
Mobilization			% of A		9.3%	\$494,000	B-4
Removals / Resets			% of A		3.7%	\$197,000	B-5
Roadway			% of A		0.4%	\$22,000	B-6
Signing and Striping			% of A		2.1%	\$112,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$160,000	B-8
Traffic Control / Detour			% of A		9.6%	\$510,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$54,000	B-10
Bid Force Accounts			% of A		1.4%	\$75,000	B-11
Total of Bid Construction Items						\$7,700,000	B
Force Account - Misc.			% of B		2.6%	\$201,000	C-1
Minor Contract Revisions			% of B		4.0%	\$308,000	C-2
Total of Bid Construction Items & Force Account Items						\$8,209,000	C
Design Engineering			% of C		8.0%	\$657,000	D-1
Construction Engineering			% of C		17.0%	\$1,396,000	D-2
Total Design & Construction Cost						\$10,262,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$103,000	E-2
Total Project, Design & Construction Cost						\$10,365,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$44,000	F
Total Project Cost Estimate						\$10,409,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Improve WCR 17 from the northern GMA boundary to SH 14 to a 2-Lane Minor
Arterial (± 0.50 Miles)

					Date Prepared:	October 30, 2020	#32
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	8,604	\$ 137,664		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	6,320	\$ 189,600	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	4,646	\$ 557,520	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	-	\$ -	No C&G, only shoulder	
5	Concrete Sidewalk	SY	\$ 50.00	3,520	\$ 176,000	6-Foot Detached (both sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 1,061,000		
					% of Major Item Cost		
Total Major Items						\$1,061,000	A
Drainage / Utilities			% of A		8.0%	\$85,000	B-1
Environmental			% of A		5.0%	\$54,000	B-2
Miscellaneous			% of A		1.5%	\$16,000	B-3
Mobilization			% of A		9.3%	\$99,000	B-4
Removals / Resets			% of A		3.7%	\$40,000	B-5
Roadway			% of A		0.4%	\$5,000	B-6
Signing and Striping			% of A		2.1%	\$23,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$32,000	B-8
Traffic Control / Detour			% of A		9.6%	\$102,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$11,000	B-10
Bid Force Accounts			% of A		1.4%	\$15,000	B-11
Total of Bid Construction Items						\$1,543,000	B
Force Account - Misc.			% of B		2.6%	\$41,000	C-1
Minor Contract Revisions			% of B		4.0%	\$62,000	C-2
Total of Bid Construction Items & Force Account Items						\$1,646,000	C
Design Engineering			% of C		8.0%	\$132,000	D-1
Construction Engineering			% of C		17.0%	\$280,000	D-2
Total Design & Construction Cost						\$2,058,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$21,000	E-2
Total Project, Design & Construction Cost						\$2,079,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$9,000	F
Total Project Cost Estimate						\$2,088,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Improve WCR 25 from the northern GMA boundary to SH 14 to a 2-Lane Minor
Arterial (± 0.50 Miles)

					Date Prepared:	October 30, 2020	#33
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	8,604	\$ 137,664		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	6,320	\$ 189,600	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	4,646	\$ 557,520	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	-	\$ -	No C&G, only shoulder	
5	Concrete Sidewalk	SY	\$ 50.00	3,520	\$ 176,000	6-Foot Detached (both sides)	
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 1,061,000		
					% of Major Item Cost		
Total Major Items						\$1,061,000	A
Drainage / Utilities			% of A		8.0%	\$85,000	B-1
Environmental			% of A		5.0%	\$54,000	B-2
Miscellaneous			% of A		1.5%	\$16,000	B-3
Mobilization			% of A		9.3%	\$99,000	B-4
Removals / Resets			% of A		3.7%	\$40,000	B-5
Roadway			% of A		0.4%	\$5,000	B-6
Signing and Striping			% of A		2.1%	\$23,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$32,000	B-8
Traffic Control / Detour			% of A		9.6%	\$102,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$11,000	B-10
Bid Force Accounts			% of A		1.4%	\$15,000	B-11
Total of Bid Construction Items						\$1,543,000	B
Force Account - Misc.			% of B		2.6%	\$41,000	C-1
Minor Contract Revisions			% of B		4.0%	\$62,000	C-2
Total of Bid Construction Items & Force Account Items						\$1,646,000	C
Design Engineering			% of C		8.0%	\$132,000	D-1
Construction Engineering			% of C		17.0%	\$280,000	D-2
Total Design & Construction Cost						\$2,058,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$21,000	E-2
Total Project, Design & Construction Cost						\$2,079,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$9,000	F
Total Project Cost Estimate						\$2,088,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Install right turn lane on eastbound SH 14 at WCR 23

					Date Prepared:	October 30, 2020	#35
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	1,000	\$ 16,000			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	500	\$ 15,000	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	400	\$ 48,000	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	800	\$ 24,000			
5	Concrete Sidewalk	SY \$ 50.00	-	\$ -			
6	Traffic Signal	Each \$ 400,000	-	\$ -			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 103,000			
					% of Major Item Cost		
Total Major Items						\$103,000	A
Drainage / Utilities		% of A		8.0%		\$9,000	B-1
Environmental		% of A		5.0%		\$6,000	B-2
Miscellaneous		% of A		1.5%		\$2,000	B-3
Mobilization		% of A		9.3%		\$10,000	B-4
Removals / Resets		% of A		3.7%		\$4,000	B-5
Roadway		% of A		0.4%		\$1,000	B-6
Signing and Striping		% of A		2.1%		\$3,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$4,000	B-8
Traffic Control / Detour		% of A		9.6%		\$10,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$2,000	B-10
Bid Force Accounts		% of A		1.4%		\$2,000	B-11
Total of Bid Construction Items						\$156,000	B
Force Account - Misc.		% of B		2.6%		\$5,000	C-1
Minor Contract Revisions		% of B		4.0%		\$7,000	C-2
Total of Bid Construction Items & Force Account Items						\$168,000	C
Design Engineering		% of C		8.0%		\$14,000	D-1
Construction Engineering		% of C		17.0%		\$29,000	D-2
Total Design & Construction Cost						\$211,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$3,000	E-2
Total Project, Design & Construction Cost						\$214,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$1,000	F
Total Project Cost Estimate						\$215,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Install traffic signal at E Harmony Road & WCR 19

					Date Prepared:	October 30, 2020	#36
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	-	\$ -		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	-	\$ -		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	-	\$ -		
4	Curb and Gutter	LF	\$ 30.00	-	\$ -		
5	Concrete Sidewalk	SY	\$ 50.00	-	\$ -		
6	Traffic Signal	Each	\$ 400,000	1	\$ 400,000		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 400,000		
					% of Major Item Cost		
Total Major Items						\$400,000	A
Drainage / Utilities			% of A		8.0%	\$32,000	B-1
Environmental			% of A		5.0%	\$20,000	B-2
Miscellaneous			% of A		1.5%	\$6,000	B-3
Mobilization			% of A		9.3%	\$38,000	B-4
Removals / Resets			% of A		3.7%	\$15,000	B-5
Roadway			% of A		0.4%	\$2,000	B-6
Signing and Striping			% of A		2.1%	\$9,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$12,000	B-8
Traffic Control / Detour			% of A		9.6%	\$39,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$4,000	B-10
Bid Force Accounts			% of A		1.4%	\$6,000	B-11
Total of Bid Construction Items						\$583,000	B
Force Account - Misc.			% of B		2.6%	\$16,000	C-1
Minor Contract Revisions			% of B		4.0%	\$24,000	C-2
Total of Bid Construction Items & Force Account Items						\$623,000	C
Design Engineering			% of C		8.0%	\$50,000	D-1
Construction Engineering			% of C		17.0%	\$106,000	D-2
Total Design & Construction Cost						\$779,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$8,000	E-2
Total Project, Design & Construction Cost						\$787,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$4,000	F
Total Project Cost Estimate						\$791,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Install traffic signal at E Harmony Road & WCR 23

					Date Prepared:	October 30, 2020	#37
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	-	\$ -		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	-	\$ -		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	-	\$ -		
4	Curb and Gutter	LF	\$ 30.00	-	\$ -		
5	Concrete Sidewalk	SY	\$ 50.00	-	\$ -		
6	Traffic Signal	Each	\$ 400,000	1	\$ 400,000		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 400,000		
					% of Major Item Cost		
Total Major Items						\$400,000	A
Drainage / Utilities			% of A		8.0%	\$32,000	B-1
Environmental			% of A		5.0%	\$20,000	B-2
Miscellaneous			% of A		1.5%	\$6,000	B-3
Mobilization			% of A		9.3%	\$38,000	B-4
Removals / Resets			% of A		3.7%	\$15,000	B-5
Roadway			% of A		0.4%	\$2,000	B-6
Signing and Striping			% of A		2.1%	\$9,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$12,000	B-8
Traffic Control / Detour			% of A		9.6%	\$39,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$4,000	B-10
Bid Force Accounts			% of A		1.4%	\$6,000	B-11
Total of Bid Construction Items						\$583,000	B
Force Account - Misc.			% of B		2.6%	\$16,000	C-1
Minor Contract Revisions			% of B		4.0%	\$24,000	C-2
Total of Bid Construction Items & Force Account Items						\$623,000	C
Design Engineering			% of C		8.0%	\$50,000	D-1
Construction Engineering			% of C		17.0%	\$106,000	D-2
Total Design & Construction Cost						\$779,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$8,000	E-2
Total Project, Design & Construction Cost						\$787,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$4,000	F
Total Project Cost Estimate						\$791,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Install traffic signal and turn lanes at WCR 72 & WCR 21

					Date Prepared:	October 30, 2020	#38
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	1,000	\$ 16,000			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	500	\$ 15,000	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	500	\$ 60,000	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	600	\$ 18,000			
5	Concrete Sidewalk	SY \$ 50.00	-	\$ -			
6	Traffic Signal	Each \$ 400,000	1	\$ 400,000			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 509,000			

Severance Transportation Plan
Estimate of Conceptual Costs
Install roundabout at WCR 72 & WCR 23

					Date Prepared:	October 30, 2020	#39
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	-	\$ -		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	-	\$ -		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	-	\$ -		
4	Curb and Gutter	LF	\$ 30.00	-	\$ -		
5	Concrete Sidewalk	SY	\$ 50.00	-	\$ -		
6	Roundabout	Each	\$ 750,000	1	\$ 750,000		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 750,000		
					% of Major Item Cost		
Total Major Items						\$750,000	A
Drainage / Utilities			% of A		8.0%	\$60,000	B-1
Environmental			% of A		5.0%	\$38,000	B-2
Miscellaneous			% of A		1.5%	\$12,000	B-3
Mobilization			% of A		9.3%	\$70,000	B-4
Removals / Resets			% of A		3.7%	\$28,000	B-5
Roadway			% of A		0.4%	\$3,000	B-6
Signing and Striping			% of A		2.1%	\$16,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$23,000	B-8
Traffic Control / Detour			% of A		9.6%	\$72,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$8,000	B-10
Bid Force Accounts			% of A		1.4%	\$11,000	B-11
Total of Bid Construction Items						\$1,091,000	B
Force Account - Misc.			% of B		2.6%	\$29,000	C-1
Minor Contract Revisions			% of B		4.0%	\$44,000	C-2
Total of Bid Construction Items & Force Account Items						\$1,164,000	C
Design Engineering			% of C		8.0%	\$94,000	D-1
Construction Engineering			% of C		17.0%	\$198,000	D-2
Total Design & Construction Cost						\$1,456,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$15,000	E-2
Total Project, Design & Construction Cost						\$1,471,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$7,000	F
Total Project Cost Estimate						\$1,478,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Install traffic signal and turn lanes at WCR 70 & WCR 21

					Date Prepared:	October 30, 2020	#40
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY \$ 16.00	1,185	\$ 18,960			
2	Aggregate Base Course (Class 6)	Ton \$ 30.00	638	\$ 19,140	12-Inch Depth		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton \$ 120.00	469	\$ 56,280	8" Depth - Widening / 2" Overlay - Existing		
4	Curb and Gutter	LF \$ 30.00	800	\$ 24,000			
5	Concrete Sidewalk	SY \$ 50.00	-	\$ -			
6	Traffic Signal	Each \$ 400,000	1	\$ 400,000			
7	Landscaping	SF \$ 4.00	-	\$ -			
8				\$ -			
9				\$ -			
10				\$ -			
Total Major Items				\$ 519,000			

Severance Transportation Plan
Estimate of Conceptual Costs
Install roundabout at WCR 70 & WCR 23

					Date Prepared:	October 30, 2020	#41
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	-	\$ -		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	-	\$ -	12-Inch Depth	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	-	\$ -	8" Depth - Widening / 2" Overlay - Existing	
4	Curb and Gutter	LF	\$ 30.00	-	\$ -		
5	Roundabout	SY	\$ 750,000.00	1	\$ 750,000		
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 750,000		
					% of Major Item Cost		
Total Major Items						\$750,000	A
Drainage / Utilities			% of A		8.0%	\$60,000	B-1
Environmental			% of A		5.0%	\$38,000	B-2
Miscellaneous			% of A		1.5%	\$12,000	B-3
Mobilization			% of A		9.3%	\$70,000	B-4
Removals / Resets			% of A		3.7%	\$28,000	B-5
Roadway			% of A		0.4%	\$3,000	B-6
Signing and Striping			% of A		2.1%	\$16,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$23,000	B-8
Traffic Control / Detour			% of A		9.6%	\$72,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$8,000	B-10
Bid Force Accounts			% of A		1.4%	\$11,000	B-11
Total of Bid Construction Items						\$1,091,000	B
Force Account - Misc.			% of B		2.6%	\$29,000	C-1
Minor Contract Revisions			% of B		4.0%	\$44,000	C-2
Total of Bid Construction Items & Force Account Items						\$1,164,000	C
Design Engineering			% of C		8.0%	\$94,000	D-1
Construction Engineering			% of C		17.0%	\$198,000	D-2
Total Design & Construction Cost						\$1,456,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$15,000	E-2
Total Project, Design & Construction Cost						\$1,471,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$7,000	F
Total Project Cost Estimate						\$1,478,000	G

Severance Transportation Plan
Estimate of Conceptual Costs
Install traffic signal at SH 392 & WCR 23

					Date Prepared:	October 30, 2020	#42
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	-	\$ -		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	-	\$ -		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	-	\$ -		
4	Curb and Gutter	LF	\$ 30.00	-	\$ -		
5	Concrete Sidewalk	SY	\$ 50.00	-	\$ -		
6	Traffic Signal	Each	\$ 400,000	1	\$ 400,000		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 400,000		
					% of Major Item Cost		
Total Major Items						\$400,000	A
Drainage / Utilities			% of A		8.0%	\$32,000	B-1
Environmental			% of A		5.0%	\$20,000	B-2
Miscellaneous			% of A		1.5%	\$6,000	B-3
Mobilization			% of A		9.3%	\$38,000	B-4
Removals / Resets			% of A		3.7%	\$15,000	B-5
Roadway			% of A		0.4%	\$2,000	B-6
Signing and Striping			% of A		2.1%	\$9,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$12,000	B-8
Traffic Control / Detour			% of A		9.6%	\$39,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$4,000	B-10
Bid Force Accounts			% of A		1.4%	\$6,000	B-11
Total of Bid Construction Items						\$583,000	B
Force Account - Misc.			% of B		2.6%	\$16,000	C-1
Minor Contract Revisions			% of B		4.0%	\$24,000	C-2
Total of Bid Construction Items & Force Account Items						\$623,000	C
Design Engineering			% of C		8.0%	\$50,000	D-1
Construction Engineering			% of C		17.0%	\$106,000	D-2
Total Design & Construction Cost						\$779,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$8,000	E-2
Total Project, Design & Construction Cost						\$787,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$4,000	F
Total Project Cost Estimate						\$791,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Install traffic signal at WCR 23 and Hidden Valley Pkwy

					Date Prepared:	October 30, 2020	#43
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	-	\$ -		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	-	\$ -		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	-	\$ -		
4	Curb and Gutter	LF	\$ 30.00	-	\$ -		
5	Concrete Sidewalk	SY	\$ 50.00	-	\$ -		
6	Traffic Signal	Each	\$ 400,000	1	\$ 400,000		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 400,000		
					% of Major Item Cost		
Total Major Items						\$400,000	A
Drainage / Utilities			% of A		8.0%	\$32,000	B-1
Environmental			% of A		5.0%	\$20,000	B-2
Miscellaneous			% of A		1.5%	\$6,000	B-3
Mobilization			% of A		9.3%	\$38,000	B-4
Removals / Resets			% of A		3.7%	\$15,000	B-5
Roadway			% of A		0.4%	\$2,000	B-6
Signing and Striping			% of A		2.1%	\$9,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$12,000	B-8
Traffic Control / Detour			% of A		9.6%	\$39,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$4,000	B-10
Bid Force Accounts			% of A		1.4%	\$6,000	B-11
Total of Bid Construction Items						\$583,000	B
Force Account - Misc.			% of B		2.6%	\$16,000	C-1
Minor Contract Revisions			% of B		4.0%	\$24,000	C-2
Total of Bid Construction Items & Force Account Items						\$623,000	C
Design Engineering			% of C		8.0%	\$50,000	D-1
Construction Engineering			% of C		17.0%	\$106,000	D-2
Total Design & Construction Cost						\$779,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$8,000	E-2
Total Project, Design & Construction Cost						\$787,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$4,000	F
Total Project Cost Estimate						\$791,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Install traffic signal at E Harmony Road and Timber Ridge Pkwy

					Date Prepared:	October 30, 2020	#44
Item		Unit Cost	Quantity	Extended Cost	Notes		
1	Earthwork	CY	\$ 16.00	-	\$	-	
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	-	\$	-	
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	-	\$	-	
4	Curb and Gutter	LF	\$ 30.00	-	\$	-	
5	Concrete Sidewalk	SY	\$ 50.00	-	\$	-	
6	Traffic Signal	Each	\$ 400,000	1	\$	400,000	
7	Landscaping	SF	\$ 4.00	-	\$	-	
8					\$	-	
9					\$	-	
10					\$	-	
Total Major Items				\$	400,000		
					% of Major Item Cost		
Total Major Items						\$400,000	A
Drainage / Utilities		% of A		8.0%		\$32,000	B-1
Environmental		% of A		5.0%		\$20,000	B-2
Miscellaneous		% of A		1.5%		\$6,000	B-3
Mobilization		% of A		9.3%		\$38,000	B-4
Removals / Resets		% of A		3.7%		\$15,000	B-5
Roadway		% of A		0.4%		\$2,000	B-6
Signing and Striping		% of A		2.1%		\$9,000	B-7
Traffic / Lighting / ITS		% of A		3.0%		\$12,000	B-8
Traffic Control / Detour		% of A		9.6%		\$39,000	B-9
Structural - Minor Structures / Walls		% of A		1.0%		\$4,000	B-10
Bid Force Accounts		% of A		1.4%		\$6,000	B-11
Total of Bid Construction Items						\$583,000	B
Force Account - Misc.		% of B		2.6%		\$16,000	C-1
Minor Contract Revisions		% of B		4.0%		\$24,000	C-2
Total of Bid Construction Items & Force Account Items						\$623,000	C
Design Engineering		% of C		8.0%		\$50,000	D-1
Construction Engineering		% of C		17.0%		\$106,000	D-2
Total Design & Construction Cost						\$779,000	D
Right-of-Way		0	SF	\$5.00		\$0	E-1
Utilities		% of D		1.0%		\$8,000	E-2
Total Project, Design & Construction Cost						\$787,000	E
Contingency (Engineering, ROW & Utilities Only)		% of D1, D2, E1, E2		2.0%		\$4,000	F
Total Project Cost Estimate						\$791,000	G

Severance Transportation Plan
Estimate of Conceptual Costs

Install right turn lane on northbound WCR 21 at Hidden Valley Pkwy

					Date Prepared:	October 30, 2020	#45
Item			Unit Cost	Quantity	Extended Cost	Notes	
1	Earthwork	CY	\$ 16.00	1,000	\$ 16,000		
2	Aggregate Base Course (Class 6)	Ton	\$ 30.00	500	\$ 15,000		
3	Hot Mix Asphalt (Grade S)(100)(PG 64-22)	Ton	\$ 120.00	400	\$ 48,000		
4	Curb and Gutter	LF	\$ 30.00	800	\$ 24,000		
5	Concrete Sidewalk	SY	\$ 50.00	-	\$ -		
6	Traffic Signal	Each	\$ 400,000	-	\$ -		
7	Landscaping	SF	\$ 4.00	-	\$ -		
8					\$ -		
9					\$ -		
10					\$ -		
Total Major Items					\$ 103,000		
					% of Major Item Cost		
Total Major Items						\$103,000	A
Drainage / Utilities			% of A		8.0%	\$9,000	B-1
Environmental			% of A		5.0%	\$6,000	B-2
Miscellaneous			% of A		1.5%	\$2,000	B-3
Mobilization			% of A		9.3%	\$10,000	B-4
Removals / Resets			% of A		3.7%	\$4,000	B-5
Roadway			% of A		0.4%	\$1,000	B-6
Signing and Striping			% of A		2.1%	\$3,000	B-7
Traffic / Lighting / ITS			% of A		3.0%	\$4,000	B-8
Traffic Control / Detour			% of A		9.6%	\$10,000	B-9
Structural - Minor Structures / Walls			% of A		1.0%	\$2,000	B-10
Bid Force Accounts			% of A		1.4%	\$2,000	B-11
Total of Bid Construction Items						\$156,000	B
Force Account - Misc.			% of B		2.6%	\$5,000	C-1
Minor Contract Revisions			% of B		4.0%	\$7,000	C-2
Total of Bid Construction Items & Force Account Items						\$168,000	C
Design Engineering			% of C		8.0%	\$14,000	D-1
Construction Engineering			% of C		17.0%	\$29,000	D-2
Total Design & Construction Cost						\$211,000	D
Right-of-Way			0	SF	\$5.00	\$0	E-1
Utilities			% of D		1.0%	\$3,000	E-2
Total Project, Design & Construction Cost						\$214,000	E
Contingency (Engineering, ROW & Utilities Only)			% of D1, D2, E1, E2		2.0%	\$1,000	F
Total Project Cost Estimate						\$215,000	G

APPENDIX J

REFERENCES

2020 Severance Comprehensive Plan, Town of Severance, 2020

Severance Transportation Plan, Felsburg, Holt and Ullevig, 2015

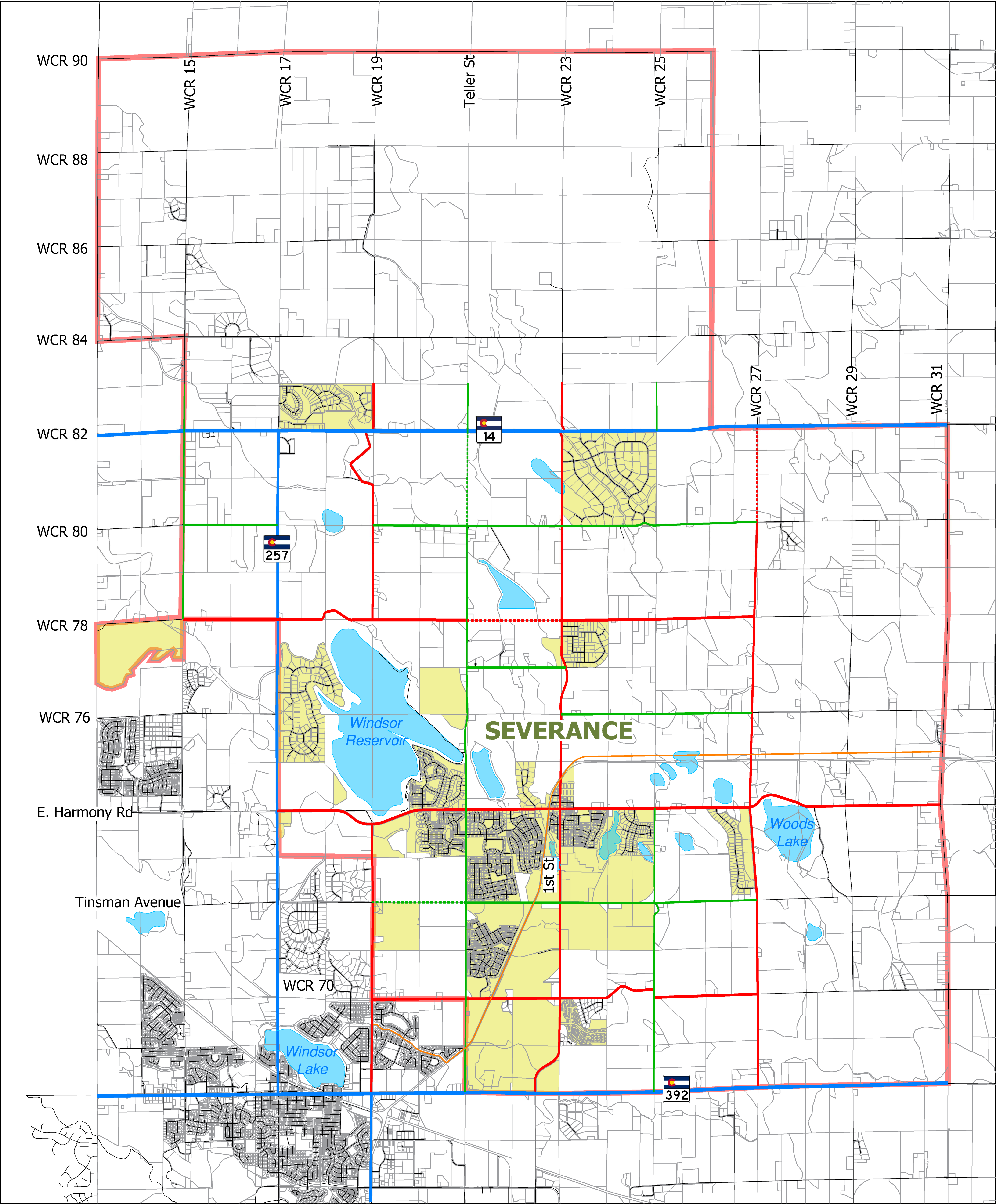
North Front Range TPR, 2045 Regional Transportation Plan, North Front Range Metropolitan Planning Organization, 2019

Weld County 2045 Transportation Plan, Weld County Public Works Department, 2020

Manual on Uniform Traffic Control Devices, US Department of Transportation – Federal Highway Administration, 2009

APPENDIX K

ROADWAY PLAN



LEGEND

	Growth Management Area		State Highway		Collector/Local
	Severance Town Limits		Major Arterial		Great Western Trail
			Minor Arterial		Future Connection

0 2500
SCALE: 1" = 2500'