SANTA CLARA CITY

MASTER TRAFFIC & TRANSPORTATION PLAN/IMPACT FEE FACILITIES PLAN, WITH IMPACT FEE ANALYSIS - UPDATE

PREPARED BY:

SUNRISE ENGINEERING

SUNRISE ENGINEERING, INC.
11 North 300 West
Washington, UT 84780
TEL: 435-652-8450
FAX: 435-652-8416

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JANUARY, 2015

MAYOR---------- Rick Rosenberg
COUNCIL MEMBER ---------- Herb Basso
COUNCIL MEMBER ---------- Kenneth Sizemore
COUNCIL MEMBER ---------- David Whitehead
COUNCIL MEMBER ---------- Mary Jo Hafen
COUNCIL MEMBER ---------- Jerry Amundsen
CITY MANAGER---------- Edward Dickie
PUBLIC WORKS DIRECTOR---------- Jack Taylor
RECORDER---------- Chris Shelley

Steven B. Hall, P.E.
Project Manager
State of Utah No. 8328781

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SECTION I
INTRODUCTION

A. Background

This Master Traffic & Transportation Plan/Impact Fee Facilities Plan (MTP) has been prepared to provide street and transportation planning information for the Santa Clara City service area. Santa Clara City is located in Washington County, Utah along Highway 91. An area and location map showing the location of Santa Clara City, is provided as Exhibit I.A-1.

B. Study Need

Santa Clara City has experienced significant growth over the past 30 years. At times this growth has been somewhat rapid, and has required improvements and upgrades to much of the City's public infrastructure in order to meet the increased demands. In recent years, growth has slowed as the economy went into recession. However, the Southern Utah housing market has gained momentum and moderate growth rates are expected over the next few years.

In addition, a potential area of future growth in the City could occur in the area south of the Santa Clara River known as the "South Hills". This area is owned by the federal government and is under the control of the Bureau of Land Management (BLM). The South Hills area had previously been identified in a land bill as an area of potential disposal. In recent years the discovery of threatened and/or endangered plants in the South Hills area has delayed future development; however, there has been recent development south of the river and there is a proposed 70-lot subdivision in the South Hills area being planned for development in the near future.

C. Study Purpose

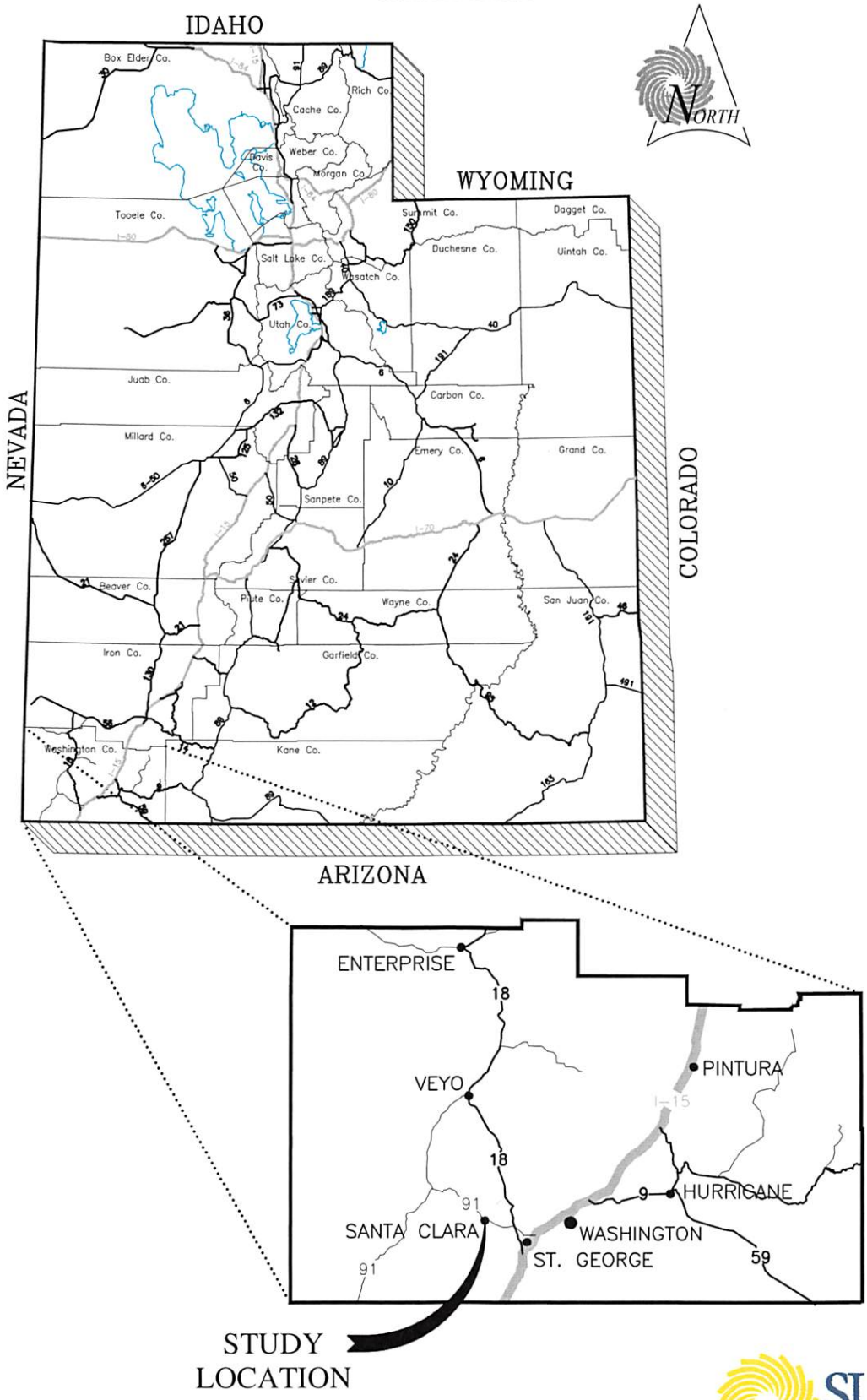
The purpose of this MTP is to provide a master plan for the street facilities within the service area of the City and prepare a financial viability analysis from which the City may take information and recommendations presented in this MTP for imposing allowable rates, tolls, charges, etc. associated with the required street facilities capital improvements.

D. Study Area

The service area used for this MTP includes the Santa Clara City limits (3,825 acres according to the latest version of the City's General Plan). See Exhibit I.A-1 for approximate location of the City and Exhibit III.E-1 for approximate location boundaries.

There are intersections just outside of the City boundary that will not be included in this MTP as they are anticipated to be completed by neighboring communities. These include the Pioneer Parkway/Santa Clara Dr. intersection and the Red Mountain Dr. intersection with the proposed Western Corridor. The Rachel Dr./Santa Clara Dr. intersection is anticipated to be included in the City boundaries at a later date and therefore is included in the study area.

EXHIBIT I.A-1
AREA MAP



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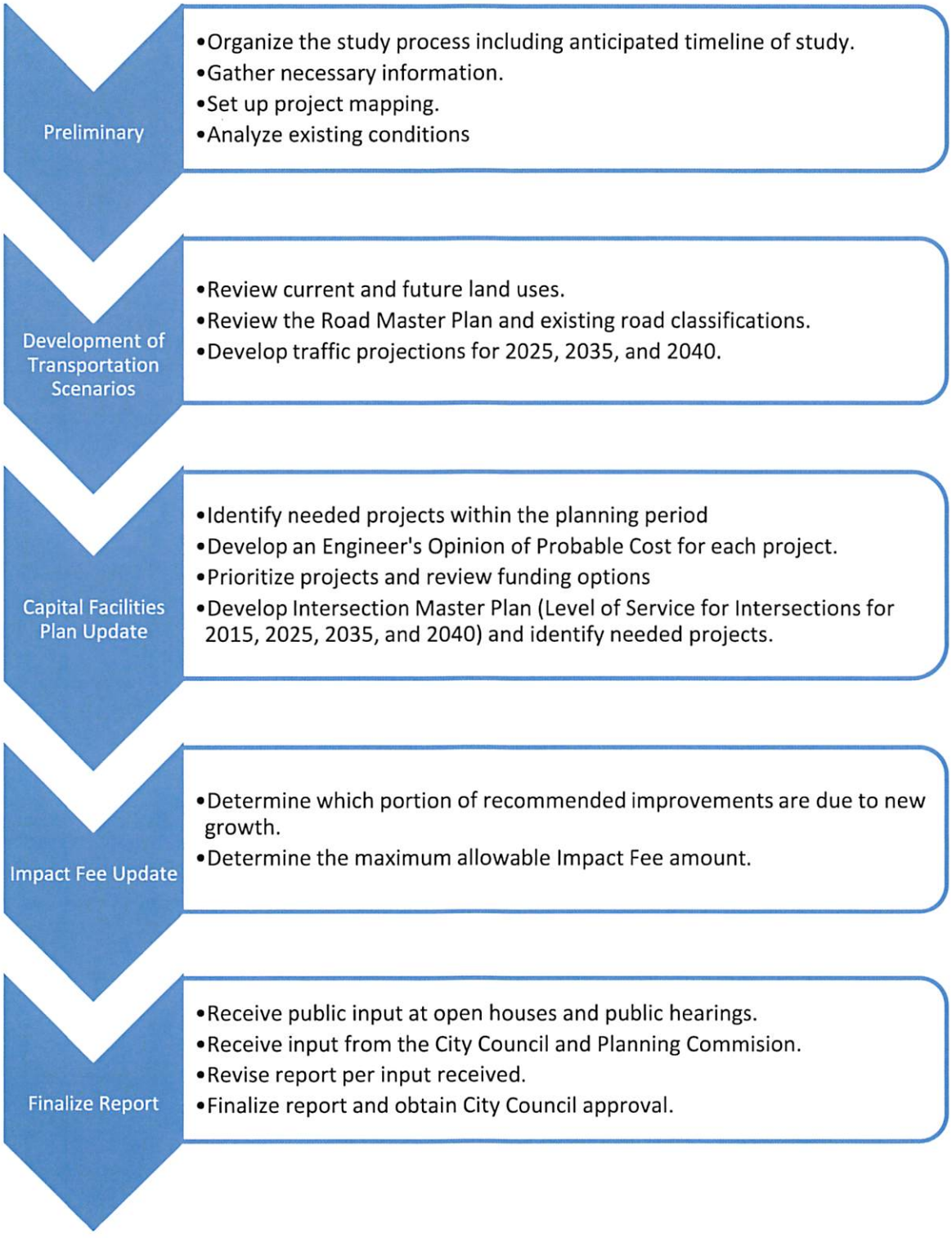
E. Study Process

i. Workflow

A summary of the study process is shown in the chart below:



ii. Public Involvement

Public involvement is important for this MTP during the study process. The following are methods that were utilized during the study process to receive public input.

- Public open house
- Public hearing at Planning Commission meeting
- Public hearing at City Council Meeting

F. Funding Sources

i. Impact Fees

According to the "Impact Fees Act" (11-36a-101), an Impact Fee is described as a "payment of money imposed upon new development activity as a condition of development approval to mitigate the impact of the new development on public infrastructure." In other words, public improvements that are necessitated due to new growth may be paid for by growth in accordance with the Impact Fees Act.

This plan includes an Impact Fee Analysis which will be used to estimate the portion of new improvements necessitated due to growth, and correspondingly the maximum allowable Impact Fee that can be charged to growth.

ii. Federal Funding Sources

There are several types of federal funds that are allocated to the state of Utah each year for use on transportation. In Utah, the Joint Highway Committee (JHC) provides coordination and yearly project recommendations to the Utah Transportation Commission for the use of these federal funds.

The following are specific highway funds that are administered by the JHC and a recent amount allocated for each type of fund:

- STP Non-Urban Funds – Areas less than 5,000 population ($6.0M - 2014)
- STP Small Urban Funds - Areas between 5,000 & 50,000 population ($3.0M - 2014)
- Off-System Bridge Funds - Bridges on local/rural minor collector roads ($1.8M - 2013)
- State Park Access Funds - Facilities accessing State Parks ($500K - 2013)
- TAP Non-Urban Funds - Areas Less than 5,000 population ($210K - 2014)
- TAP Small Urban Funds - Areas between 5,000 & 50,000 population ($320K - 2014)

A large portion of the available funds are from the Surface Transportation Program (STP). According to the Fedreral Highway Administration, STP funds are provided for "flexible funding that may be used by States and localities for projects on any Federal-aid highway, including the NHS, bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities."

iii. State Funding Sources

B&C Road Funds

The Class B & C road system with a funding program was established by the Utah Legislature in 1937 as a means of providing assistance to counties and incorporated municipalities for the improvement of roads and streets throughout the state.

The Funds differ from ordinary local revenues inasmuch as they are subject to administrative direction by the State in accordance with legislative provision. The Utah Department of Transportation is the administrative authority on behalf of the State.

Table I.C-1 below shows the amounts Santa Clara received from B&C road funds over the past two years.

Table I.C-1. B&C Road Funds Received by Santa Clara

Period	Amt. Received
July-August 2014	$ 22,721
May-June 2014	$ 42,644
March-April 2014	$ 46,286
January-February 2014	$ 30,358
November-December 2013	$ 45,445
September-October 2013	$ 41,644
July-August 2013	$ 23,487
May-June 2013	$ 51,556
March-April 2013	$ 45,375
January-February 2013	$ 32,276
November-December 2012	$ 35,984
September-October 2012	$ 37,841
July-August 2012	$ 31,533

Figure I.C-1 below shows how the funding has differed for each period on average since 2006. As can be seen from the chart, May-June and November-December have historically been the months where Santa Clara City has received the most B&C road funds.

Figure I.C-1. Average B&C Road Funds Received per Period

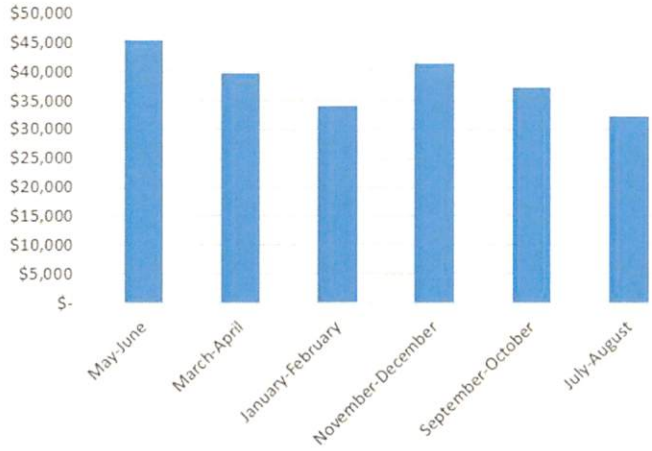


Table I.C-2 below shows the total B&C road funds that were dispersed in the State of Utah and Santa Clara since 2006 and what percentage of the funds were dispersed to Santa Clara. The table also shows the weighted mileage - during the months July-August for each year - used to calculate Santa Clara's share of B&C road funds. The final column shows the amount spent on "Total highways and public improvements" as shown in the City's financial statements.

Table I.C-2. B&C Road Funds Received by Santa Clara

Year	Total Utah	Santa Clara	% Santa Clara	Mileage	Spent
2014	$ 124,231,457	$ 229,864	0.185%	200.6	
2013	$ 129,267,884	$ 234,564	0.181%	200.6	$ 242,021
2012	$ 124,837,388	$ 222,465	0.178%	182.61	$ 341,896
2011	$ 124,199,471	$ 235,554	0.190%	182.61	$ 425,058
2010	$ 118,888,804	$ 229,509	0.193%	182.61	$ 379,462
2009	$ 118,289,293	$ 224,887	0.190%	182.61	$ 368,497
2008	$ 128,055,200	$ 249,369	0.195%	177.4	$ 759,626
2007	$ 124,415,351	$ 231,702	0.186%	171.02	$ 506,319
2006	$ 115,835,329	$ 212,012	0.183%	164.37	$ 436,255

As can be seen from this table, the funds that Santa Clara receives from the B&C road funds have not changed significantly since 2006.

iv. Local Funding Sources

General Fund

A possible source of local funding for transportation projects is from the City's general fund. One requirement is that there be adequate funds in the general fund. Because of this, it is doubtful that the general fund could provide significant funds toward a transportation project in the future.

v. Council of Governments

The Council of Governments (COG) is one option for providing funding for transportation projects that involve obtaining right of way.

G. 2013 Road Master Plan

Santa Clara City's most recent Road Master Plan is shown in Appendix A. The classifications shown in the Road Master Plan are reviewed in this MTP and recommendations for classifications are given. A revised Road Master Plan which shows the existing and proposed classifications is provided later in the report.

SECTION II
EXISTING CONDITIONS

A. Land Use

An important element in any community plan is the projection of the City's population. This projection gives the planner an idea of the future demands the City should plan for throughout the planning period. This plan utilizes planning periods of 2015 to 2025, 2025 to 2035, and 2035 to 2040.

Projecting the future population can be a subjective process. With this in mind Table II.A-1 below shows the City's historic growth rates based on official Census data from 1970 to 2010 as well as Census estimates for the years 2010 through 2013.

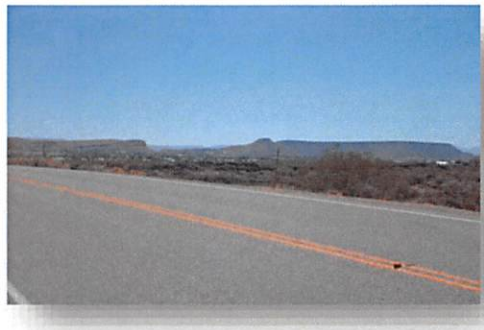
Table II.A-1. Historic Growth

Year	Source	Population	Growth Rate	
1970	Census	271	-	-
1980	Census	1,091	1970-1980	14.94%
1990	Census	2,311	1980-1990	7.79%
2000	Census	4,630	1990-2000	7.20%
2010	Census	6,003	2000-2010	2.63%
2011	Census Est	6,294	2010-2011	4.85%
2012	Census Est	6,421	2011-2012	2.02%
2013	Census Est	6,526	2012-2013	1.64%

In this Master Plan, census information will not be the basis of the population or future growth; instead, the growth inherently used in the Dixie Metropolitan Planning Organization (MPO) traffic model will be used. This will ensure that this master plan is compatible to the existing MPO model.

B. Socio-Economic Data

Socio-economic data is important for this Master Plan in that it helps provide a basis for the traffic model. The socio-economic data used in this plan is what has been used in the Dixie MPO traffic model. This is to ensure that the traffic model developed for Santa Clara City is compatible with the regional model. The Dixie MPO data presents estimated number of households and population, as well as total employment including retail, food, manufacturing, wholesale, office, government/education, health, other, and schools (K-5 and 6-12). A breakdown of this data for the year 2015 is included as Appendix D.



C. Functional Street Classification

Functional Street Classification provides a method to define each element of the roadway network as it serves the travel needs placed upon it. For example, an arterial provides mobility in that the arterials are meant to allow people to travel longer distances; whereas a local street provides accessibility to residences

or businesses. Each street classification provides a different role in the roadway network. Below are the three functional street classifications that will be used in this study:

- Arterials – Arterials serve major centers of metropolitan areas, provide a high degree of mobility and can also provide mobility through rural areas. Unlike their access-controlled counterparts, abutting land uses can be served directly. The key here is mobility. Although arterials can also be broken out into minor arterials, this plan does not distinguish between arterials and minor arterials in an effort to stay consistent with the City's Standards.
- Collectors – Collectors serve a critical role in the roadway network by gathering traffic from Local Roads and funneling them to the Arterial network. Collectors can be broken down into major and minor collectors. For simplicity and to stay consistent with the City Standards, this plan does not distinguish between minor and major collectors.
- Local Roads – Local roads represent the largest percentage of roads in the roadway network in terms of mileage. They are intended to only provide access from the origin and to the destination of a trip and not for long distance travel.

The majority of roads in Santa Clara City are local roads; however, Santa Clara City does have arterials such as Santa Clara Dr. which provide residents of Santa Clara and Ivins access to neighboring communities and collectors such as Canyon View Dr. which provide the link between the local roads and the arterials. The functional road classification for Santa Clara City that existed previous to this plan is shown in the Santa Clara City Road Master Plan, 2013 which is included as Appendix A.

D. Levels of Service Definition

Utah's Impact Fees Act defines Level of Service as "the defined performance standard or unit of demand for each capital component of a public facility within a service area." For this impact fee facilities plan, the Level of Service will be taken as the Average Daily Traffic (ADT) volume.

SECTION III
FUTURE CONDITIONS

A. Land Use and Growth

i. Population and Employment Forecasts

As stated previously, this plan will use Dixie MPO's household and land use data to provide compatibility with the regional MPO model.

The City of Santa Clara has grown significantly since 1970. During the 1970's it grew at almost 15% per year. During the 1980's and 1990's the city grew at over 7% per year. Despite this rapid population growth, there has been very little commercial development in Santa Clara. The City is primarily a residential community supporting the St. George area. Because it is bound by lava flows, flood plains, environmentally sensitive areas, and other municipalities, it is not expected to grow as fast as it has historically.

Growth in the near future is likely to occur in large developments (e.g. Bella Sol and Paradise Villages at Zion) north of Pioneer Parkway, the Villages on the Heights subdivision, Pioneer Parkway Townhomes, the Sun Ridge subdivision, Tuscany at Cliffrose, the Hills subdivision, and the Veranda Park subdivision.

It is important to understand that projected growth rates are not the corner stone of this plan. If the projected population is reached earlier or later than anticipated, then future improvements to support growth may either come earlier or later.

ii. Future Land Use

Similar to existing land use, future land use patterns and socio-economic data were obtained from Dixie MPO data. This data is included in Appendix D for the years 2015, 2025, 2035, and 2040. Table III.A-2 is the anticipated employment for those years. Employment for the year 2015 was found by assuming the growth rate from 2012 to 2020 and applying it to the 2012 figure.

Table III.A-2. Employment Estimates

Year	Employment	Growth Rate
2012	1,399	
2015	1,581	4.2%
2020	1,939	4.2%
2025	2,316	3.6%
2035	3,077	2.9%
2040	3,569	3.0%

B. Transportation Model

a. Traffic Analysis Zones

Determining traffic volumes is dependent on traffic analysis zones. A traffic analysis zone (TAZ) is a unit of geography that is used to estimate the number of trips generated from a specific area. In determining the number of trips generated, traffic analysis zones use the land use data and socioeconomic data. Trips are generated from trip origins (i.e. residential households) to trip destinations (i.e. commercial areas).

This plan uses the existing traffic analysis zones from the Dixie MPO model; however, these zones have been modified to more accurately define certain areas. The locations where most of these modifications were made include splitting of zones in the South Hills area and the area in the northern portion of the City. In addition to splitting zones, the growth and employment in some zones was modified.

A summary of the zone splits is included as Appendix C.

b. Modeling procedure

Once land use and socioeconomic data have been obtained, and traffic analysis zones have been determined, a traffic model can be generated.

The process for modeling involves the following steps:

- Trip generation – land use and socio-economic data is used to determine the number of trips produced and attracted in each traffic analysis zone.
- Trip distribution – determination of trip volumes between zones.
- Mode choice – the physical means of transportation used for a trip.
- Traffic assignment – estimation of the volume on each individual component of the transportation system.

A traffic model was used for this MTP to help forecast the total average daily trips anticipated on each segment of roadway. Modeling can help determine places where the traffic applies the most pressure on the roadway network and can provide justification for alleviating those points with additional infrastructure.

The model used by the MPO for Santa Clara City and the surrounding region is the Cube traffic modeling software by Citilabs. This same software was utilized for this plan.

The Cube modeling software automates each of the aforementioned modeling steps. The land use data and traffic analysis zones are input to the model as well as the road network. The Cube model takes this input and generates trips based on information for each TAZ including number of homes, number of workers, estimated number of cars per household, number of jobs, etc. The model also performs the trip distribution, mode choice, and traffic assignment.

The results of the model show the anticipated average daily traffic for all segments of roadway. These results, in turn, help to assign the proper road classification to each segment of roadway.

c. Roadway Network and Traffic Forecasts

Once the traffic analysis zones are set up and the model is run, it is possible to develop roadway networks for future time periods. From these networks it is possible to forecast traffic patterns on these roads.

Additional roads have been added to the model for future years. Appendix B indicates all the roads that have been added for the plan. Additional exhibits in Appendix B also further details a timeframe for when those roads are anticipated. The model is used to determine future volumes or levels of service of roadways based on the anticipated road improvements.

In traffic forecasting using a model, there is generally some error between the modeled results and actual counts. Where actual counts are available, traffic forecasts for future periods have been adjusted by this same error in order to more accurately represent what is expected in the future.

C. Road Classification Review

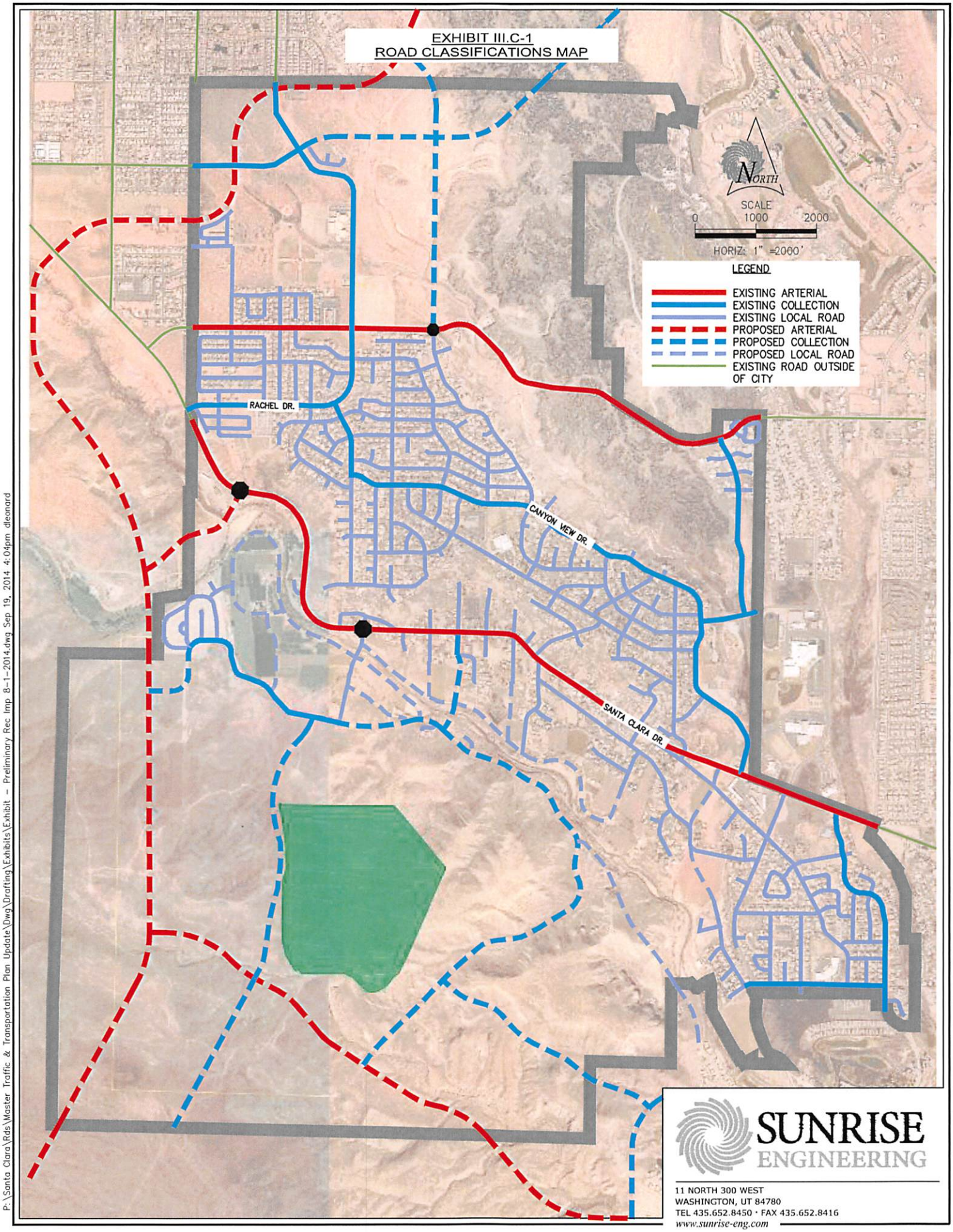
Assigning a road classification represents how a roadway will function with regards to a variety of roadway characteristics. These characteristics often include the following: location within the overall network, speed limit, traffic volume, roadway spacing, number and frequency of accesses, mobility, right-of-way width, pedestrian and bike movement, etc. In assigning classifications for this MTP, the major characteristic taken into consideration was the maximum design volumes, or capacity, associated with each classification. Table III.C.1 outlines the criteria used for this MTP that relates maximum design volume with street classification.

Table III.C-1: Design Volumes

Class	Design Volume (ADT)
Residential Acess	< 150
Residential Standard	150 to 1,500
Collector	1,500 to 6,000
Arterial	6,000 to 20,000

The revised Road Master Plan as shown in Exhibit III.C-1 on the following page reflects the results of assigning a classification to each of the major roadways within the service area based mainly on the design volumes for each classification while still taking into consideration the other characteristics as previously stated in this sub section.

As will be presented later in this report, the collectors will be looked at individually and a cross section created for each collector in this plan.



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WASHINGTON, UT 84780
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Requirements for each road classification are shown in the Santa Clara City Construction Design Standards. The right-of-way width and pavement width are two of these requirements and are shown below for each class:

Table III.C-2: Pavement and ROW Width Requirements

Class	Pavement Width	ROW Width
Residential Acess	29 to 35	34 to 50
Residential Standard	35	50
Collector	50	66
Arterial	65	80 to 100

Some of these roads may not currently meet the volume requirement for a certain road classification; however, these roads are anticipated to meet the requirement by buildout. Therefore, right-of-way widths should be for the buildout roadway classifications even though full buildout of the right-of way won't take place until after the planning period.

D. Basic Roadway Design Standards

Basic roadway design standards can be found within the Santa Clara City Construction Design Standards and Standard Drawings. These standards are available on Santa Clara City's website at http://www.sccity.org/media/uploads/2013/04/02/files/Construction_Design_Standards_2012.pdf and http://www.sccity.org/media/uploads/2012/09/14/files/Construction_Design_Standards_Drawings_2012.pdf.

These standards are for reference purposes only, and any future roadway designs need to be approved by the City.

E. Special Considerations: South Hills

One item of special consideration for the MTP is the area of Santa Clara known as South Hills.

Currently, most of the land on the south side of the Santa Clara River is owned by the Bureau of Land Management (BLM). This portion represents 1,100 acres of the property in the "South Hills" that was identified in a fairly recent land bill; although its presence in the bill is no guarantee of BLM disposal. If the BLM were to sell the land in the "South Hills" to a developer, significant growth would be expected in this area.

The South Hills developable area has since been reduced as the BLM has identified areas where threatened and endangered plants are located. Exhibit III.E-1 on the following page shows the build-out area; including the original City area and the South Hills area. The South Hills area shown is the current area that the BLM might sell. The area has been adjusted in the past and may be adjusted again.

There is also a possibility that development in the South Hills may not occur, or that it may not occur until the latter portion of, or following, the planning period. The City is including the South Hills area in their general plan and has elected to include the South Hills area in this MTP.

The South Hills area includes a large portion of undevelopable land. The location of future roads as shown in the appendices have been planned to provide accessibility to the areas that are developable and

connectivity to neighboring communities. Specifically, St. George City staff has been consulted in preparation of these future road alignments.

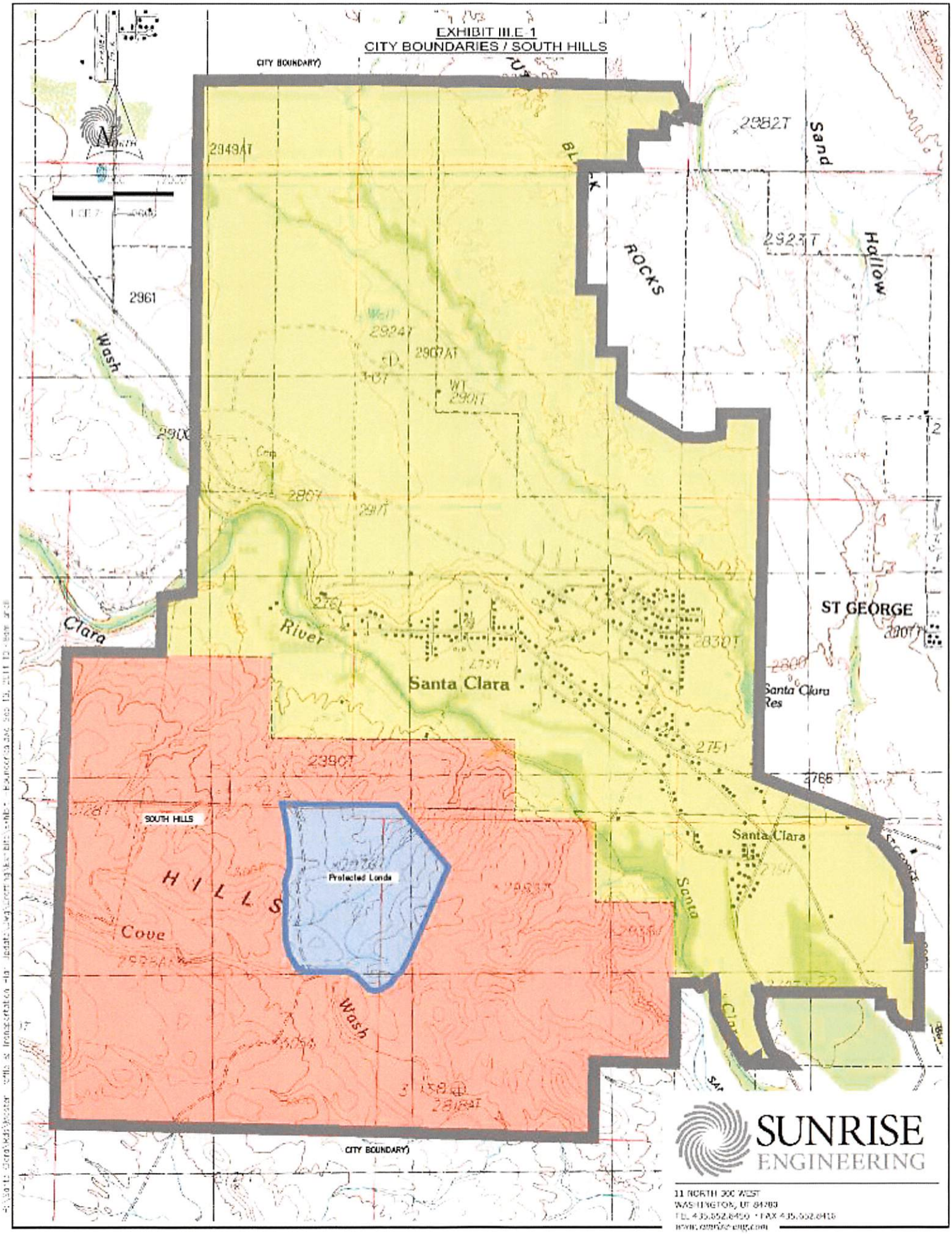
EXHIBIT III.E.1
CITY BOUNDARIES / SOUTH HILLS
CITY BOUNDARY)
2949AT
2982T
Sand
2923T
Hallow
ROCKS
2961
Wash
2924T
2907AT
2901T
2900
2807
2811T
Clara
River
Santa Clara
ST GEORGE
2830T
2751
2766
Santa Clara
Res
2390T
SOUTH HILLS
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WASHINGTON, UT 84780
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SECTION IV
TRANSPORTATION IMPROVEMENT PLANS

A. Basis for Improvements

Future improvements to the roadway network are important in Santa Clara City due to anticipated growth, the City being fairly land-locked, and high volumes of traffic on Santa Clara Dr.

B. Street Cross Sections

After consultation with groups that have a vested interest the magnitude of impact fees at the time of building permit, and in an effort to address their concerns, Santa Clara City has directed us to look at the typical cross sections for collectors and see if they can be configured differently. Analysis was performed using projected traffic from the model. It was determined that Red Mountain Drive which is classified as a collector can handle the projected traffic with only one lane each way if and only if no parking be allowed along the road, access is limited along the roadway to only major intersections, and if turn lanes are provided at those intersections.

As these new revised and customized standards are adopted, the developer will be bound by them; new development costs will be less but the limitations on the development is conversely increased. If a developer determines that the development needs access points, driveways, and/or parking then that developer will be required to provide the additional right-of-way and the actual construction according the previous standard cross section for a collector. This is a significant change in thinking for any city in the region and is different from that which has been accepted as standard for years. In theory it will provide the traffic flow required as long as the new requirements are not adjusted by other pressures. Any change in configuration, traffic patterns, zoning or roadways could make this solution null and void. All development along these adjusted collector roads must be strictly held to the standard in order for it to provide an acceptable level of service.

Due to the relatively few collector streets in Santa Clara City, this plan looks at each collector street individually and includes a cross section for that street. These cross sections are shown in Appendix I. If any other streets are deemed to be collectors and cross sections are not shown, these will be addressed on a case by case basis with the City.

C. Ten-year TIP

i. Transportation Projects (2015-2025)

The planned roadway and intersection improvements for the ten year planning period include new roads, traffic signals, and a low flow crossing in those areas that are currently experiencing growth as well as widening of Pioneer Parkway to alleviate some of the demand on Santa Clara Dr. The areas that are currently seeing growth are the area in South Hills immediately south of the Santa Clara River and north of the BLM owned land, as well as the area in the northern part of the City near Gubler Park and the expected commercial development. A list of these improvements are shown below as well as comments regarding each improvement and an estimated cost.

New Roads

Chapel St. to Santa Clara River (Extend Collector):

Currently there is only one location to cross the Santa Clara River to the developments on Clary Hills Dr. In order serve additional growth that is expected in this area in the near future and to provide another access, a low flow crossing of the Santa Clara river is planned at the end of Chapel St. In order to access this low flow crossing, Chapel St. north of the Santa Clara River will need to be extended. Initial indications show that the City does not currently have right-of-way to extend Chapel St. and will most likely need to acquire ROW to make this possible. This project would include approximately 1,000 feet of 34 ft wide asphalt and associated improvements.

Cost Estimate: $539,750

Chapel St./Clary Hills Dr. from Santa Clara River to Gates Ln. (Extend Collector):

Chapel St. would be extended south of the new low flow crossing, transition to Clary Hills Dr. and connect at Gates Lane. This road would provide connectivity between the low flow crossing and the Gates Lane bridge and could serve as a way to connect to the proposed Western Corridor in the future. This project would be completed entirely by the developer and will therefore not be included in the impact fee calculations.

Portion of South Hills Collector A (Collector):

Additional roads will be needed in the South Hills area if the BLM ever disposes of that land. One such road is designated as South Hills Collector A. This road runs north and south parallel to the proposed Western Corridor and connects to Clary Hills Dr. Although the majority of this road is not included in the 10-year TIP, a portion of the road near Clary Hills Dr. is not within BLM lands and is anticipated to be constructed when development occurs in that area. The majority of this project would be completed by developers. The City would be responsible only for the turn lanes at Clary Hills Dr.

Cost Estimate: $33,800

Northtown Rd. East of Rachel Dr. (Extend Collector)

This road will serve as a link between Rachel Dr. and Red Mountain Dr. as well as a connection to Snow Canyon Parkway. This road will help with new traffic caused by the anticipated commercial center. The majority of this road would be completed by developers. The City would be responsible only for turn lanes at Red Mountain Dr.

Cost Estimate: $33,800

Red Mountain Dr. from Pioneer Parkway to Northern City Boundary (Collector)

This road will serve as a link between Pioneer Parkway and Northtown Rd. as well as connect traffic to Snow Canyon Parkway. This road will help with new traffic caused by the anticipated commercial

center. This majority of this project would be completed by developers. The City would be responsible for the turn lanes at Northtown Rd. and Pioneer Parkway.

Cost Estimate: $69,000

Other Improvements

Pioneer Parkway Widening East of Red Mountain Dr.

The traffic model showed significant volumes on Santa Clara Dr. As an attempt to decrease the demand on Santa Clara Dr., Pioneer Parkway is anticipated to need widening. East of Red Mountain Dr. is anticipated to be widened to 3 lanes where the third lane could be replaced with a median instead. The purpose for widening this road would be to increase the speed, thus enticing more use of the road in place of Santa Clara Dr. This stretch of road runs through lava beds where development is not anticipated in the near future. This road could most likely be widened to 5 lanes; however, there is a school on this road just outside of the City boundaries; therefore it is anticipated to stay at 3 lanes. This project is anticipated to include the earthwork, roadbase, and asphalt required to widen the road as well as ensure sight distance for higher speeds.

Cost Estimate: $1,204,000

Pioneer Parkway Improvements West of Red Mountain Dr.

Pioneer Parkway west of Red Mountain Dr. has no restrictions for changing to a 5 lane road, in fact the road is almost wide enough to restripe it to 5 lanes. Widening this section of the road to 5 lanes would help with traffic from the western portion of Santa Clara and Ivins that may be accessing the proposed commercial center on Pioneer Parkway or traveling to St. George. Therefore, this road is anticipated to be widened to 5 lanes. This project will include the removal and replacement of sidewalk and curb and gutter as well as new asphalt to widen the road.

Cost Estimate: $712,480

Pedestrian Underpass/Overpass at Rachel Dr.

Due to increased traffic expected on Rachel Dr., it is prudent that a pedestrian underpass or overpass be constructed near the school and park on Rachel Dr. to ensure safety in this high volume pedestrian area.

Cost Estimate: $900,000

New Low Flow Crossing at Chapel St.

As stated previously, currently there is only one location to cross the Santa Clara River to the developments on Clary Hills Dr. In order to provide another access as well as serve additional growth that is expected in this area in the near future, a low flow crossing is planned at the end of Chapel St. This low flow crossing would be a low-flow crossing constructed of concrete box culverts.

In an effort to keep costs down the City has elected to plan for a less expensive multiple box culvert "low flow" crossing for the required second crossing towards the South Hills instead of a full span high flow bridge. Just like the modified cross sections for the collectors, this type of crossing is not typical as it will not be accessible during floods. It is important to note that with this crossing the City will be required to police traffic during any flood event and not allow traffic during an event that may over top the structure.

Based on experience with flooding events over the past several decades it is anticipated that the bridge will be under flood waters 1-3 days per year. There should be no traveling during flooding. Not to standard could be a danger and liability after the fact. The cost for this crossing was estimated based upon minimal environmental requirements. Assuming that the environmental costs for this crossing would be similar to the requirements in obtaining the environmental permitting for the low flow crossing installed in 2013-14 just downstream for the Sunbrook Golf Course near their maintenance building.

Cost Estimate: $809,500

Traffic Signal at Red Mountain Dr./Pioneer Parkway Intersection

Based on the Intersection Master Plan (Section V), a traffic signal is anticipated to be needed at the Red Mountain Dr. and Pioneer Parkway intersection.

Cost Estimate: $250,000

Traffic Signal at Gates Ln./Santa Clara Dr. Intersection

Based on the Intersection Master Plan (Section V), a traffic signal is anticipated to be needed at the Gates Ln. and Santa Clara Dr. intersection. This signal will also serve to break up traffic along Santa Clara Dr. thus enabling easier access to Santa Clara Dr.

Cost Estimate: $250,000

City Hall portion designated for Streets

Santa Clara City recently constructed a new 25,920 square foot City Hall building. Based on information provided by the City, 744 square feet of this building are dedicated street facilities. The total principal and interest cost for the City Hall is $9,333,938.83 (actual costs). The streets division would be responsible for approximately $267,918.61 as calculated by taking the street facilities area of 744, dividing by the total area of the building (25,920), and then multiplying that percentage by the City Hall actual cost ($9,333,938.83).

Cost Estimate: $267,918.61

Impact Fee Plan Updates

This plan should be updated at least every five years, or more often as is needed. For the ten year planning period this would indicate the need for two updates during ten years. Each update is estimated at $35,000.

Cost Estimate: $70,000

ii. Project Ranking

With the projected traffic volumes on Santa Clara Dr., widening Pioneer Parkway east of Red Mountain Dr. to 3 lanes is most likely one of the highest priority. However, with a new commercial center anticipated in the northern part of the City, Red Mountain Dr. and Northtown Road could also become a priority. With potential development south of the Santa Clara River, the new bridge and improvements to Chapel Dr. and the east side of Clary Dr. will also most likely be needed soon.

D. Twenty-year TIP

i. Transportation Projects (2025-2035)

The planned roadway and intersection improvements for the twenty year planning period include new roads and a traffic signal, and a bridge. These improvements are generally in the South Hills area and include the portion of the Western Corridor that falls within the City Limits. These improvements assume that the BLM disposes of the land in the South Hills area prior to the year 2035. These improvements may be needed sooner if the BLM disposes of their land sooner than anticipated. A list of these improvements are shown below as well as comments regarding each improvement and an estimated cost.

South Side of Road along North Side of Santa Clara Dr. (Residential Standard)

This road would run north of the Santa Clara River and is needed to connect roads along the river and to provide access to the river. The City is anticipated to be responsible for half the road width (the south side) in order to ensure the access to the Santa Clara River.

South Hills Collector A (Collector):

Additional roads will be needed in the South Hills area if the BLM ever disposes of that land. One such road is designated as South Hills Collector A. This road runs north and south parallel to the proposed Western Corridor and connects to Clary Hills Dr. A portion of this road is included in the 10-year TIP; however, the majority is not anticipated to be needed until after the year 2025.

Plantations Dr. from the City Boundary to the Western Corridor (Arterial)

Plantations Dr. is already being constructed in St. George; however, it is not expected that there will be funds to construct the northern portion of Plantations Dr. to Santa Clara until development occurs and developers would be responsible for a portion of the costs. This road will be needed by then to provide an alternate route into the southern portion of St. George, specifically Dixie Dr. This road

will help alleviate demand on Santa Clara Dr. from residents in Santa Clara and Ivins. This project along with the Western Corridor should be a priority once development has commenced in the South Hills area.

Western Corridor from Plantations Dr. to across the Santa Clara River (Arterial)

A portion of the Western Corridor would be needed to be constructed in order to provide the access to Plantations Dr. The Western Corridor is a planned road that would provide access to the southern areas of St. George, specifically Bloomington and Sun River. It is assumed that Plantations Dr. will be constructed prior to the Western Corridor being extended to Santa Clara City.

Western Corridor Connector with Traffic Signal (Arterial)

When the section of the Western Corridor that is planned to be constructed prior to 2035 is constructed, instead of extending the Western Corridor to Ivins, Santa Clara City is anticipated to construct an arterial across the Santa Clara River that connects to Santa Clara Dr. This would include a road and bridge that are not currently in Santa Clara City limits, but that may end up inside the City limits in the future. When this road is constructed, a traffic signal would most likely be needed at its intersection with Santa Clara Dr.

Western Corridor in Northern Area of the City

In order to relieve demand from Santa Clara Dr. from traffic traveling to Santa Clara and Ivins from Snow Canyon Parkway, the Western Corridor is anticipated to be constructed within the next twenty years. This portion of the road would be completed in coordination with Ivins City. Rights of way for this road have already begun to be obtained.

Clary Hills Dr. to Future Western Corridor (Extend Collector)

This project would complete the last leg of Clary Dr. and connect it to the proposed Western Corridor. This project would include approximately 1,250 feet of 50 ft wide asphalt and associated improvements.

E. Twenty Five-year TIP

i. Transportation Projects (2035-2040)

The planned roadway and intersection improvements for the twenty-five year planning period include new roads in the southeast section of the South Hills area. These improvements assume that the BLM disposes of the South Hills area prior to the year 2040. These improvements may be needed sooner if the BLM disposes of this land sooner.

Extension of South Hills Collector A

This road is an extension of the South Hills Collector A to provide access south of the proposed Plantations Dr. These improvements would be needed when development extends to the southwest corner of the South Hills area.

Clary Hills Dr. Extension

Clary Hills Dr. extension (southeast of Chapel Dr.) is anticipated to be needed to provide access to the Santa Clara River and to developable areas in the south east section of the South Hills area. A portion of the Clary Hills Dr. is anticipated to only be required as a Residential Standard road as most of traffic would likely travel toward Plantations Dr. via South Hills collector B. However, this portion of the road would connect to an existing road in St. George.

South Hills Collector B

This road would provide a connection between Clary Hills Dr. and Plantations Dr. and would also provide access to areas in the southeastern section of South Hills.

South Hills Collector C

This road would connect South Hills Collector B to a planned road in St. George. This road would also provide accessibility to developable portions of the South Hills area.

SECTION V
INTERSECTION MASTER PLAN

A. Intersections Studied

This Intersection Master Plan looks at 10 intersections in Santa Clara City that are deemed the most likely to warrant traffic signals or require other improvements. The intersections that were selected are listed below:

- Northtown Rd. & Red Mountain Dr.
- Pioneer Parkway and Red Mountain Dr.
- Santa Clara Dr. & Chapel St.
- Northtown Rd. & Rachel Dr.
- Pioneer Parkway & Santa Clara Dr.
- Rachel Dr. & Santa Clara Dr.
- Santa Clara Dr. & Gates Ln.
- Little League Dr. & Canyon View Dr.
- Pioneer Parkway & Rachel Dr.
- Santa Clara Dr. & Canyon View Dr.

B. Map

A map of the intersection studied is included as Exhibit V.B-1.

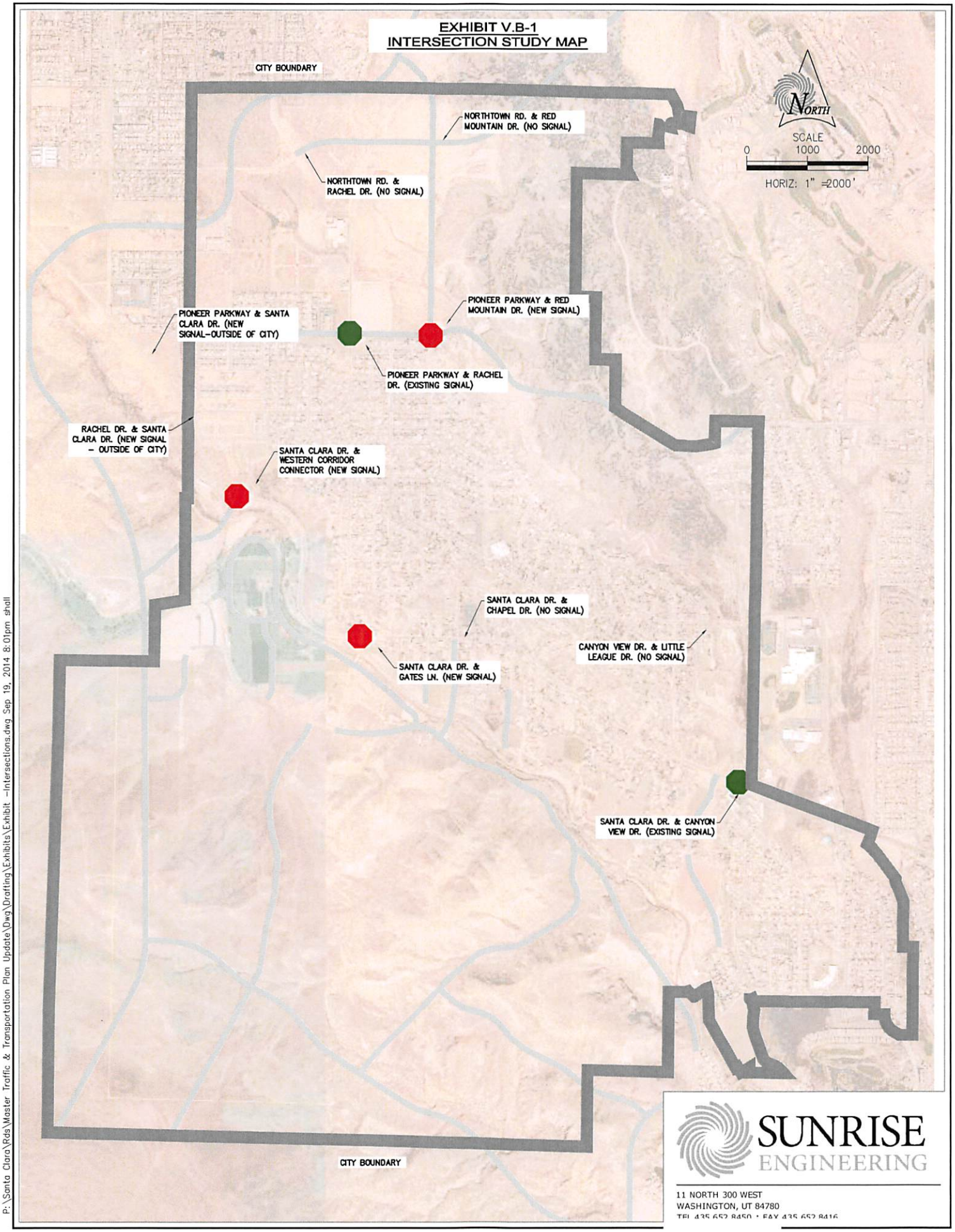
C. Analysis

The above mentioned intersections were studied based on data from the traffic model. It should be noted that this data is from a model and may not be as reliable as actual traffic counts. The results of the analysis are as shown below for the planning period:

- Northtown Rd. & Red Mountain Dr. – No improvements anticipated.
- Pioneer Parkway and Red Mountain Dr. – No improvements anticipated.
- Santa Clara Dr. & Chapel St. – No improvements anticipated.
- Northtown Rd. & Rachel Dr. – No improvements anticipated.
- Pioneer Parkway & Santa Clara Dr. – This is anticipated to require a traffic signal; however, although the majority of Pioneer Parkway is in Santa Clara, this intersection is not inside the City boundaries.
- Rachel Dr. & Santa Clara Dr. – This is anticipated to require a traffic signal; however, although the majority of Rachel Dr. is in Santa Clara, this intersection is currently not inside the City boundaries. Also, when signals are needed on Santa Clara Dr. at both Rachel Dr. and Pioneer Parkway, the signal spacing between the two intersections should be considered.
- Santa Clara Dr. & Gates Ln. – A traffic signal is anticipated to be needed at this intersection within the next ten years.
- Little League Dr. & Canyon View Dr. – No improvements anticipated.

- Pioneer Parkway & Rachel Dr. – There is currently a stop light at this intersection. This will help with traffic at this intersection when the proposed commercial center is constrcucted.
- Santa Clara Dr. & Canyon View Dr. – This intersection already includes a traffic signal. The analysis shows that this signal could see a 40% increase of traffic over the next 35 years. This increase is primarily caused by the increase of traffic on Santa Clara Dr.

EXHIBIT V.B-1
INTERSECTION STUDY MAP



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11 NORTH 300 WEST
WASHINGTON, UT 84780
TEL 435.652.8450 • FAX 435.652.8416

SECTION VI
IMPACT FEE ANALYSIS

A. Existing Impact Fee

Santa Clara City currently charges an Impact Fee of $1,562 per equivalent residential unit (ERU).

B. Impact Fee Eligible Costs

The Impact Fees Act allows for the charging of Impact Fees to pay for transportation facilities needed to mitigate the impact of new development on public infrastructure. A portion of these improvements will be designated as Impact Fee eligible due to the City needing to install the necessary infrastructure to provide for new growth.

An Impact Fee Analysis has been performed based on the improvements indicated in previous sections of this report. This Impact Fee Analysis only looks at improvements needed within the next ten years (2015 to 2025). The future improvements have been shown and justified by previous sections of this report. The improvements shown below are deemed impact fee eligible because they are needed due to an increase in the Average Daily Traffic (ADT) caused by new growth. Because level of service was taken as ADT, this affects the projected level of service of the roads throughout Santa Clara City.

Below is a list of the projects, cost, and estimated percent Impact Fee Eligible amounts prior to adding estimated financing or inflation. The total cost of the project shown in the table below shows those portions of the streets for which the City would be responsible. The developer would be responsible for the remaining portions of the road.

Table VI.B-1: Impact Fee Eligible Costs

Improvements	City Costs	% I.F. El.	I.F. El. Costs
Chapel St.	$ 539,750	100%	$ 539,750
South Hills Collector A (Turn Lanes at Identified Intersections Only)	$ 33,800	100%	$ 33,800
Northtown Road (Turn Lanes at Identified Intersections Only)	$ 33,800	100%	$ 33,800
Red Mountain Dr. (Turn Lanes at Identified Intersections Only)	$ 69,000	100%	$ 69,000
Widen Pioneer Parkway (East of Red Mountain Dr.)	$ 1,204,000	100%	$ 1,204,000
Improvements on Pioneer Parkway (West of Red Mountain Dr.)	$ 712,480	100%	$ 712,480
Pedestrian Underpass/Overpass	$ 900,000	41%	$ 365,889
Chapel St. New Low Flow Crossing	$ 809,500	100%	$ 809,500
Traffic Signal at Red Mountain Dr./Pioneer Pkwy. Intersection	$ 250,000	100%	$ 250,000
Traffic Signal at Gates Ln./Santa Clara Dr. Intersection	$ 250,000	100%	$ 250,000
Impact Fee Facilities Plan/Impact Fee Analysis Update (2019)	$ 35,000	100%	$ 35,000
Impact Fee Facilities Plan/Impact Fee Analysis Update (2024)	$ 35,000	100%	$ 35,000
City Hall portion designated for Streets	$ 267,919	13%	$ 34,829
Total Costs	$ 5,140,249		$ 4,373,048

All the listed projects are assumed to be necessitated due to new growth (100% impact fee eligible) with the exception of the pedestrian underpass/overpass and City Hall portion designated for Streets. The pedestrian underpass/overpass has been determined to be 41% impact fee eligible by dividing the 10-year additional population by the existing population.

The City Hall portion designated for Streets was determined to be approximately 13%. This was determined by calculating the percentage of additional population as compared to an assumed buildout population of 19,000 people.

The table on the following page shows the anticipated year of construction for each project, the inflated costs (at an assumed 3% per year), and the resulting Impact Fee Eligible costs. The Chapel St. New Low Flow Crossing project and the Pioneer Parkway (East of Red Mountain) projects both include assumed financing (10 years @4.0%). The cashflow shown in Appendix G shows that the other projects should be able to be funded without financing assuming that growth rates proceed as projected.

The cashflow in Appendix G also shows that the Impact Fee fund is anticipated to gain interest. This interest has been subtracted from the impact fee eligible amount. The total Impact Fee eligible amount for the Impact Fee Analyses after subtracting out an estimated $212,483 interest earned was calculated as $5,323,169.

Table VI.B-2: Impact Fee Eligible Costs (After Adding Inflation, Financing and Removing Interest)

Improvements	Year	Costs with Inflation	Cost with Financing	Total IF El. Costs
Chapel St.	2020	$ 555,943	$ 555,943	$ 555,943
South Hills Collector A (Turn Lanes at Identified Intersections Only)	2017	$ 34,814	$ 34,814	$ 34,814
Northtown Road (Turn Lanes at Identified Intersections Only)	2023	$ 34,814	$ 34,814	$ 34,814
Red Mountain Dr. (Turn Lanes at Identified Intersections Only)	2023	$ 71,070	$ 71,070	$ 71,070
Widen Pioneer Parkway (East of Red Mountain Dr.)	2019	$ 1,395,766	$ 1,720,853	$ 1,720,853
Improvements on Pioneer Parkway (West of Red Mountain Dr.)	2019	$ 825,960	$ 825,960	$ 825,960
Pedestrian Underpass/Overpass	2016	$ 954,810	$ 954,810	$ 388,171
Chapel St. New Low Flow Crossing	2020	$ 966,585	$ 1,191,712	$ 1,191,712
Traffic Signal at Red Mountain Dr./Pioneer Pkwy. Intersection	2017	$ 273,182	$ 273,182	$ 273,182
Traffic Signal at Gates Ln./Santa Clara Dr. Intersection	2022	$ 316,693	$ 316,693	$ 316,693
Impact Fee Facilities Plan/Impact Fee Analysis Update (2019)	2019	$ 40,575	$ 40,575	$ 40,575
Impact Fee Facilities Plan/Impact Fee Analysis Update (2024)	2024	$ 47,037	$ 47,037	$ 47,037
City Hall portion designated for Streets		$ 267,919	$ 267,919	$ 34,829
Total Costs		$ 5,785,166	$ 6,335,380	$ 5,535,652
		Estimated Interest Earned from Impact Fee Fund		$ 212,483
			Total IF Eligible	$ 5,323,169

C. Maximum Eligible Impact Fee

In order to determine the maximum eligible impact fee amount, the additional average number of trips per day caused by new growth in the next ten years has been calculated as 20,991 trips. These trips are broken down by TAZ for the years 2012, 2020, and 2025 (see Appendix J). The number of trips for the year 2015 were determined based on the growth rate between 2012 and 2020 (4.29%); this number (44,988 total trips) was then subtracted from the 2025 trips (65,979 trips) to determine the number of trips caused by new growth.

The impact fee amount per trip was then calculated as $225.21 per trip by dividing the total impact fee eligible costs by the additional number of trips per day. The per trip impact fee amount can then be converted to a single family equivalent (SFE) by multiplying by the average number of trips per single family household. Common practice for transportation impact fee analyses is to use the Trip Generation Manual as published by the Institute of Transportation of Engineers (ITE). ITE lists the value of trips per single family dwelling unit as 9.57. Accordingly, the maximum eligible impact fee amount per single family equivalent is $2,155.

Because residential and non-residential entities place varying demands on the transportation network by the amount of trips that are generated from the specific land use, impact fees will be charged accordingly. The ITE Trip Generation manual has been used to develop Table VI.C-1. The number of trip ends per unit (ADT) as specified in the ITE Trip Generation manual is shown on the following page. That number is multiplied by a heavy vehicle adjustment factor and pass-by trip adjustment factor. The pass-by trip adjustment factor accounts for those trips which may not be primary trips (the land use is not the primary reason for the trip).

A Demand Index is calculated by dividing each effective trip ends per unit value by the single family effective trip ends per unit. The impact fee cost per unit for each land use type is calculated by multiplying the SFE impact fee amount by the demand index. Impact fees should be charged per unit shown in the table.

D. Non-Standard Impact Fees

The proposed fees are based upon assumed growth. The City reserves the right under the Impact Fees Act to assess an adjusted fee that more closely matches the true impact that the land use will have upon public facilities. This adjustment could result in a higher or lower impact fee if the City determines that a particular user may create a different impact than what is standard for its land use. To determine the impact fee for a non-standard us, the City should use the following formula:

$$IF\ Amount = \frac{\left(\begin{matrix}Total\ Trips\text{: }PM\ Peak\ Hour\\ per\ Specified\ Land\ Use\\ in\ ITE\ Manual\end{matrix}\right) * \left(\begin{matrix}Applicable\\ Adjustment\\ Factors\end{matrix}\right) * \$2{,}155}{1.02}$$

E. Impact Fee Certification

The Impact Fee Certification is included as Appendix H.

F. Impact Fee Related Items

There are a few items related to Impact Fees that Santa Clara City staff should keep in mind when planning for, collecting, and expending impact fees.

Generally it is a good idea to update this plan at least every five years or more frequently if occasion arises. This plan assumes that it will be updated every 5 years – 2 times in the next 10 years.

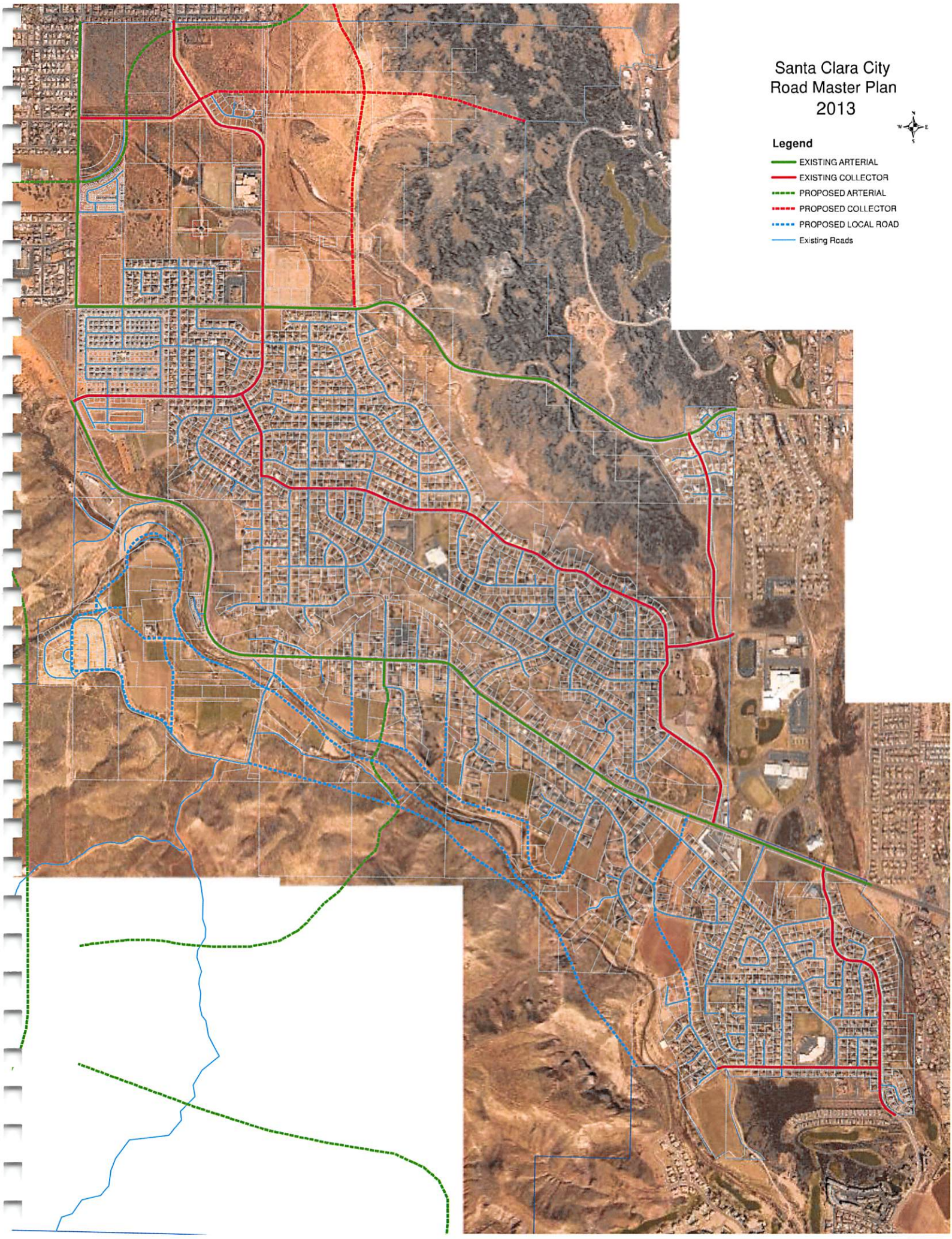
City staff should be made aware that, in conformance with Utah Code 11-36a-602, impact fees can only be expended for a system improvement that is identified in the Impact Fee Facilities Plan and that is for the specific public facility type for which the fee was collected (i.e. transportation impact fees cannot be used for water or sewer projects). Also, impact fees must be expended or encumbered for a permissible use within six years of their receipt unless 11-36a-602(2)(b) applies.

City staff should also ensure that proper accounting of the Impact Fees occurs (track each fee in and out). See Utah Code 11-36a-601.

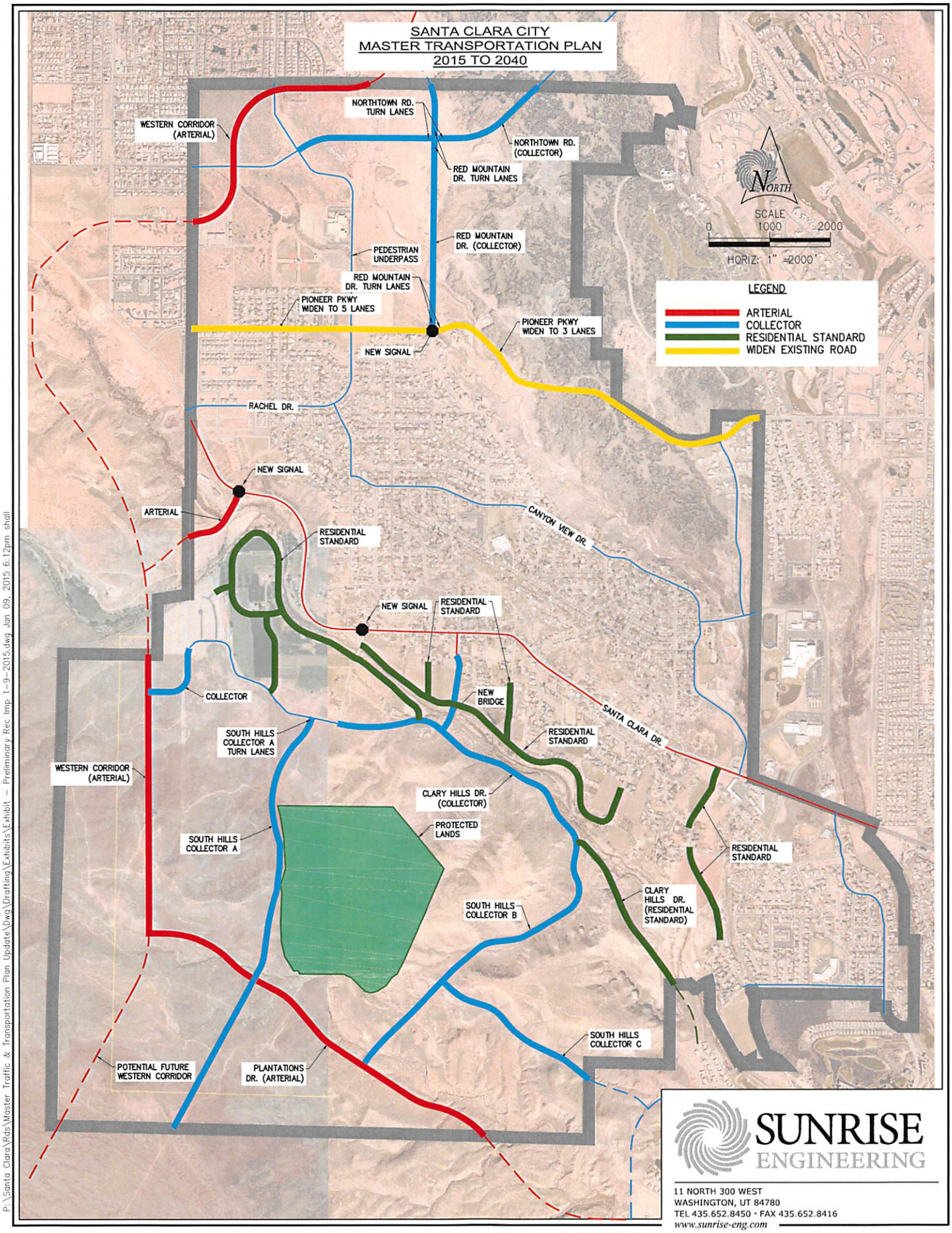
Table VI.C-1: Impact Fee Amounts per Land Use

Category	Land Use	Unit	Applicable ITE Code(s)	ITE Trip ends per Unit (ADT)	Heavy Vehide %	Heavy Vehide Adjustment	Pass-by Trip Adjustment	Effective Trip Ends per Unit	Demand Index (Single Family Equivalent)	**Impact Fee Cost Per Unit**
Residential	Single Family Detached	Dwelling Units	210	9.57	0%	1.00		9.57	1.00	**$ 2,155**
	Condominium/Townhome	Dwelling Units	230	5.81	0%	1.00		5.81	0.61	**$ 1,308**
	Apartment	Dwelling Units	220	6.65	0%	1.00		6.65	0.69	**$ 1,498**
Office	Office Building	1,000 sq. ft.	710	11.01	5%	1.05		11.56	1.21	**$ 2,604**
	Medical Office Building	1,000 sq. ft.	720	36.13	0%	1.00		36.13	3.78	**$ 8,137**
Retail	Supermarket	1,000 sq. ft.	850	102.24	0%	1.00	0.36	65.43	6.84	**$ 14,736**
	Less Intensive Retail	1,000 sq. ft.	890	5.06	5%	1.05	0.53	2.50	0.26	**$ 562**
Services	Intensive Retail	1,000 sq. ft.	820	42.94	5%	1.05	0.26	33.36	3.49	**$ 7,514**
	Quality Restaurant	1,000 sq. ft.	931	89.95	5%	1.05	0.44	52.89	5.53	**$ 11,912**
	Fast Food	1,000 sq. ft.	934	496.12	5%	1.05	0.50	260.46	27.22	**$ 58,659**
	Convenience Market w/ Gas Pumps	Pump Stations	945	162.78	5%	1.05	0.62	64.95	6.79	**$ 14,627**
Industrial	Bank	1,000 sq. ft.	912	148.15	0%	1.00	0.47	78.52	8.20	**$ 17,683**
	Industrial	1,000 sq. ft.	110	6.97	50%	1.50		10.46	1.09	**$ 2,355**
	Manufacturing	1,000 sq. ft.	140	3.82	50%	1.50		5.73	0.60	**$ 1,290**
	Warehousing	1,000 sq. ft.	150	3.56	50%	1.50		5.34	0.56	**$ 1,203**
Institutional	Elementary School	Students	520	1.29	0%	1.00		1.29	0.13	**$ 291**
	Middle/Junior School	Students	522	1.62	0%	1.00		1.62	0.17	**$ 365**
	High School	Students	530	1.71	0%	1.00		1.71	0.18	**$ 385**
	Private School (K-12)	Students	536	2.48	0%	1.00		2.48	0.26	**$ 559**
	Day Care	1,000 sq. ft.	565	79.26	0%	1.00	0.80	15.85	1.66	**$ 3,570**
	Library	1,000 sq. ft.	590	56.24	0%	1.00	0.50	28.12	2.94	**$ 6,333**
	Church	1,000 sq. ft.	560	9.11	0%	1.00		9.11	0.95	**$ 2,052**
Ldg	Hotel/Motel	Rooms	310/320	6.90	5%	1.05		7.25	0.76	**$ 1,632**

Appendix A
Existing Road Master Plan


Santa Clara City
Road Master Plan
2013
Legend
EXISTING ARTERIAL
EXISTING COLLECTOR
PROPOSED ARTERIAL
PROPOSED COLLECTOR
PROPOSED LOCAL ROAD
Existing Roads

Appendix B
Planned Improvements



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11 NORTH 300 WEST
WASHINGTON, UT 84780
TEL 435.652.8450 · FAX 435.652.8416
www.sunrise-eng.com

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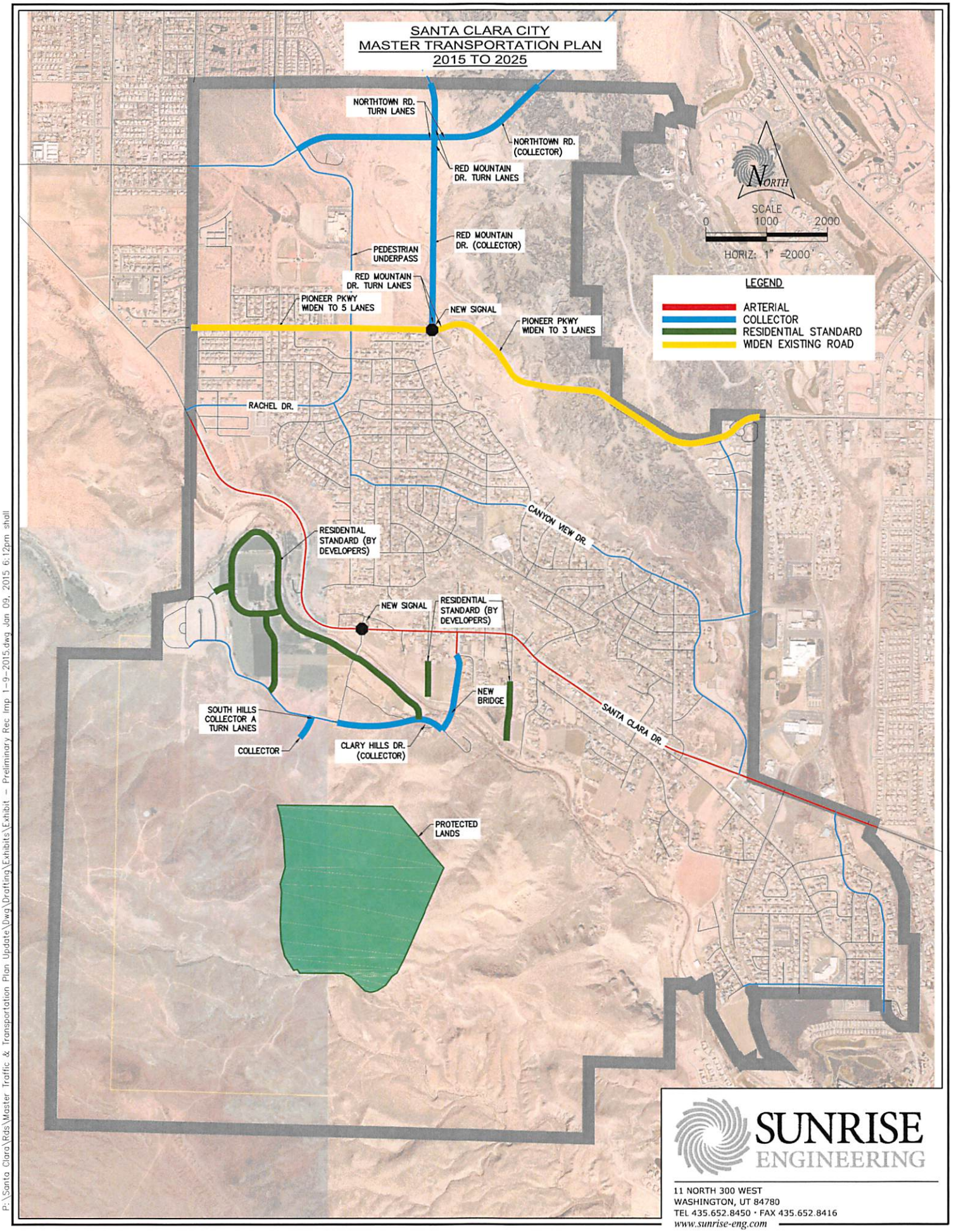

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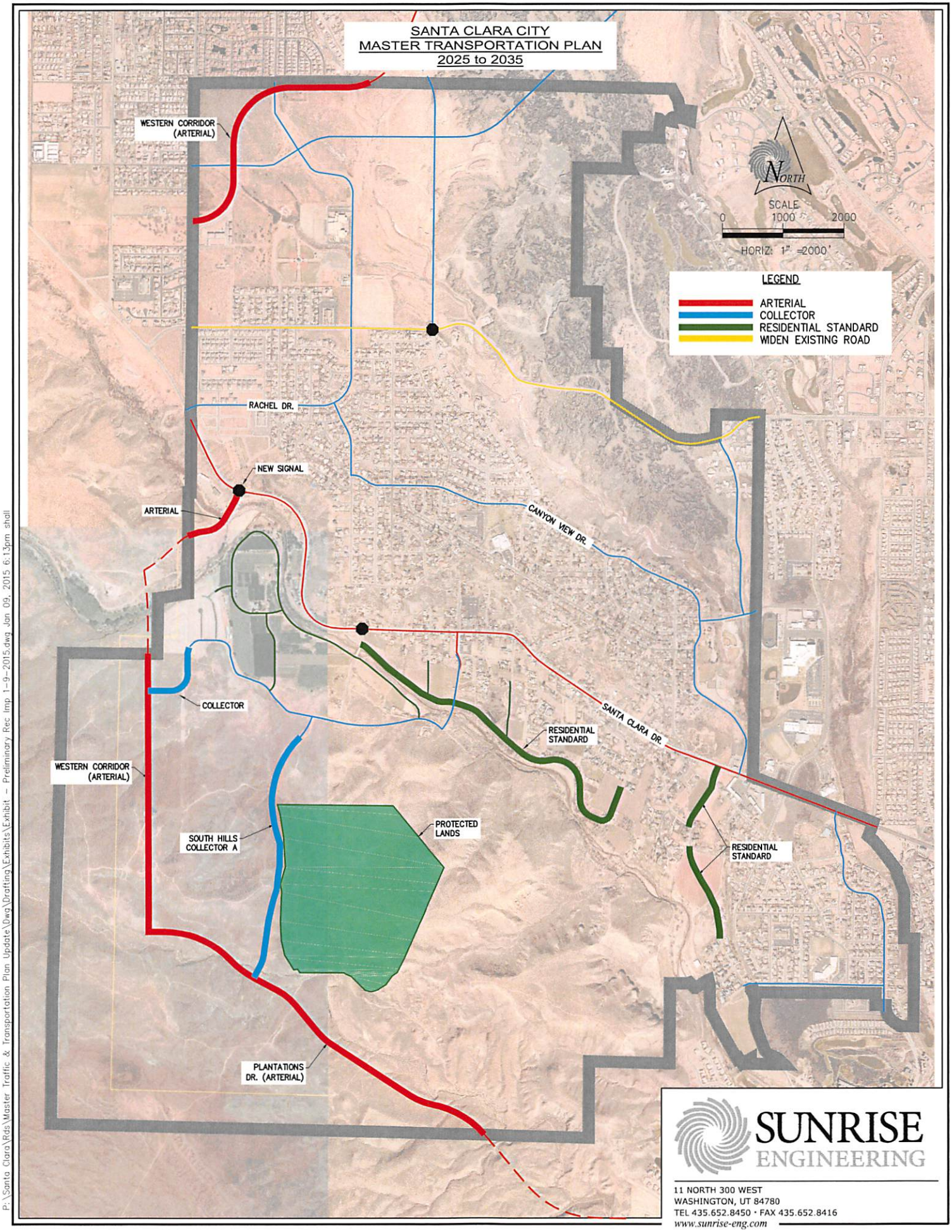
SANTA CLARA CITY
MASTER TRANSPORTATION PLAN
2025 to 2035



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11 NORTH 300 WEST
WASHINGTON, UT 84780
TEL 435.652.8450 · FAX 435.652.8416
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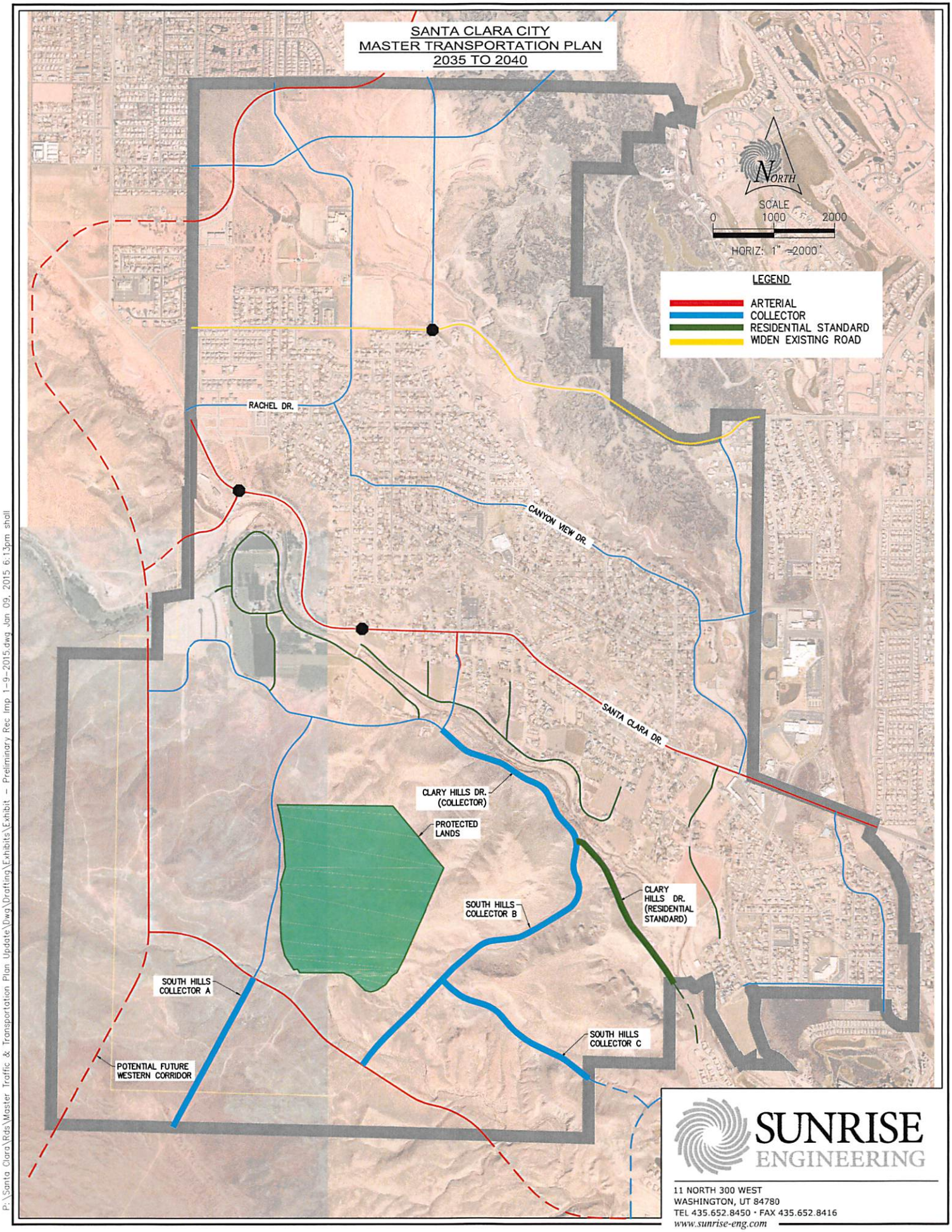
SANTA CLARA CITY
MASTER TRANSPORTATION PLAN
2035 TO 2040



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11 NORTH 300 WEST
WASHINGTON, UT 84780
TEL 435.652.8450 · FAX 435.652.8416
www.sunrise-eng.com

Appendix C
Traffic Analysis Zones