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# **NORTHERN NEVADA SIERRA MEDICAL CENTER**

**Planned Unit Development Handbook**

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**City of Reno**

**Adopted by Reno City Council on March 13, 2019**

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**Chapter 1**  
**Project Description**

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## 1. Project Description

### Introduction

The Northern Nevada Sierra Medical Center Planned Unit Development Handbook (PUD) represents the design standards to guide development of the Northern Nevada Sierra Medical Center. The PUD includes a mix of hospital and medical offices to create a medical campus along with support uses. This is a single parcel development project with phasing over an approximate ten-year period.

### Objectives

The objective of the Northern Nevada Sierra Medical Center PUD is to establish design standards and expectations to develop uses on the property that will address the following:

- Create symbiotic land use relationship with adjacent properties in all directions;
- Utilization of Low Impact Development (LID), development standards, and drainage facilities required for development of the site;
- Provide regional medical services in a location that is ideally located and underserved at this time;
- Provide excellent connectivity and access to the arterial roadway network and several nearby connections to I-580.

- Show compatibility of the site with Reno Tahoe Airport Authority operations through the provisions in this PUD Handbook, compliance with height restrictions, and compliance with FAA regulations.

### Project Location

Northern Nevada Sierra Medical Center encompasses the 22.2 acres located on the southeast corner of the Longley Lane and Double R Boulevard intersection. Access to site is provided from the west by Longley Lane, from the east by Double R Boulevard, and by Innovation Drive to the south. The site is bound to the north and east by general office development and industrial flex space type development; to the west by employment and offices; and to the south by employment and warehouse and distribution industrial.



Figure 1. Vicinity Map

Site Conditions

The Northern Nevada Sierra Medical Center site is currently undeveloped vacant land. The site is relatively flat and slopes gently to the north, averaging one percent of fall toward Double R Boulevard. Longley Lane makes up the westerly boundary of the site, and Double R Boulevard is located on the north and east side of the site. The site falls within the FEMA flood zone X designation, which is discussed in detail in Appendix B, Preliminary Hydrology Report.

Project Development Concept

The project concept is to develop uses that make best use of the favorable site features, including the office uses on the south end. The development plan includes the hospital as a distinctive regional hospital. The remainder of the site will be dedicated to a phased medical office park.

Table 1 outlines the development plan for Northern Nevada Sierra Medical Center use categories and phasing:

*The total number of hospital rooms is 262 rooms upon buildout of all three phases. Individual phasing totals may vary but from phasing shown in Table 1, total beds will not exceed 262. See Figure 2 – Phase 1 Site Plan on page 5.*

In order to foster compatibility of uses on the site with uses at the nearby Reno-Tahoe International Airport, a restrictive covenant will be recorded and part of the certified PUD Handbook, attached hereto as part of Appendix H.

Development Schedule

Notwithstanding any other provision of this PUD Handbook, unless a hospital is completed on the project site within seven (7) years of the recording date of the certified PUD Handbook, the land uses, development standards, and design standards herein shall automatically expire, and the site shall be developed in accordance with Industrial Commercial (IC) uses and standards contained in Reno Municipal Code (RMC) Title 18, as amended.

For purposes of the foregoing, a hospital shall be deemed complete upon issuance of

Table 1. Project Phasing Summary

Land Use	Phase I	Phase II	Phase III	Total
Hospital	290,000 sf (172 beds)	10,000 sf (OR + ER exp)	50,000 sf (90 beds)	350,000 sf (262 beds)
Medical Offices	60,000 sf	60,000 sf		120,000 sf
Parking Garage		55,000 sf 4 levels		220,000 sf
<b>TOTAL</b>	<b>350,000 sf</b>	<b>70,000 sf</b> <b>(+ parking garage)</b>	<b>50,000 sf</b>	<b>470,000 sf</b> <b>(+ parking garage)</b>

its initial certificate of occupancy (that is, the first certificate of occupancy issued for the initial phase of such hospital, independent of any potential future phases or plans for expansion).



Phase 1 is planned to be complete within one to three years, and Phase 2 is planned to occur between the fourth and tenth years. Build out of the project will be dependent on market conditions and is estimated to be within ten years. The ten-year time frame shall start from the date the certified handbook is recorded). If the project is not completed at the end of ten years, the PUD will require an amendment to determine if it is appropriate to extend the development schedule. This time frame shall apply to the construction of approved hospital phasing and permitted medical buildings described in this PUD handbook.

**PARKING AREAS**

- AREA A = 333 STALLS
- AREA B = 17 STALLS
- AREA C = 174 STALLS
- AREA D = 8 STALLS (ADA)
- AREA E = 205 STALLS
- AREA F = 104 STALLS
- AREA G = 10 STALLS (AMBULANCE PARKING)
- AREA H = 37 STALLS
- AREA I = 8 STALLS (LOADING DOCK/STAFF)

PHASE 1 TOTAL = 896 STALLS

**LEGEND**

-  LOOP ROAD AND HELIPAD
-  PROPOSED PHASE 1

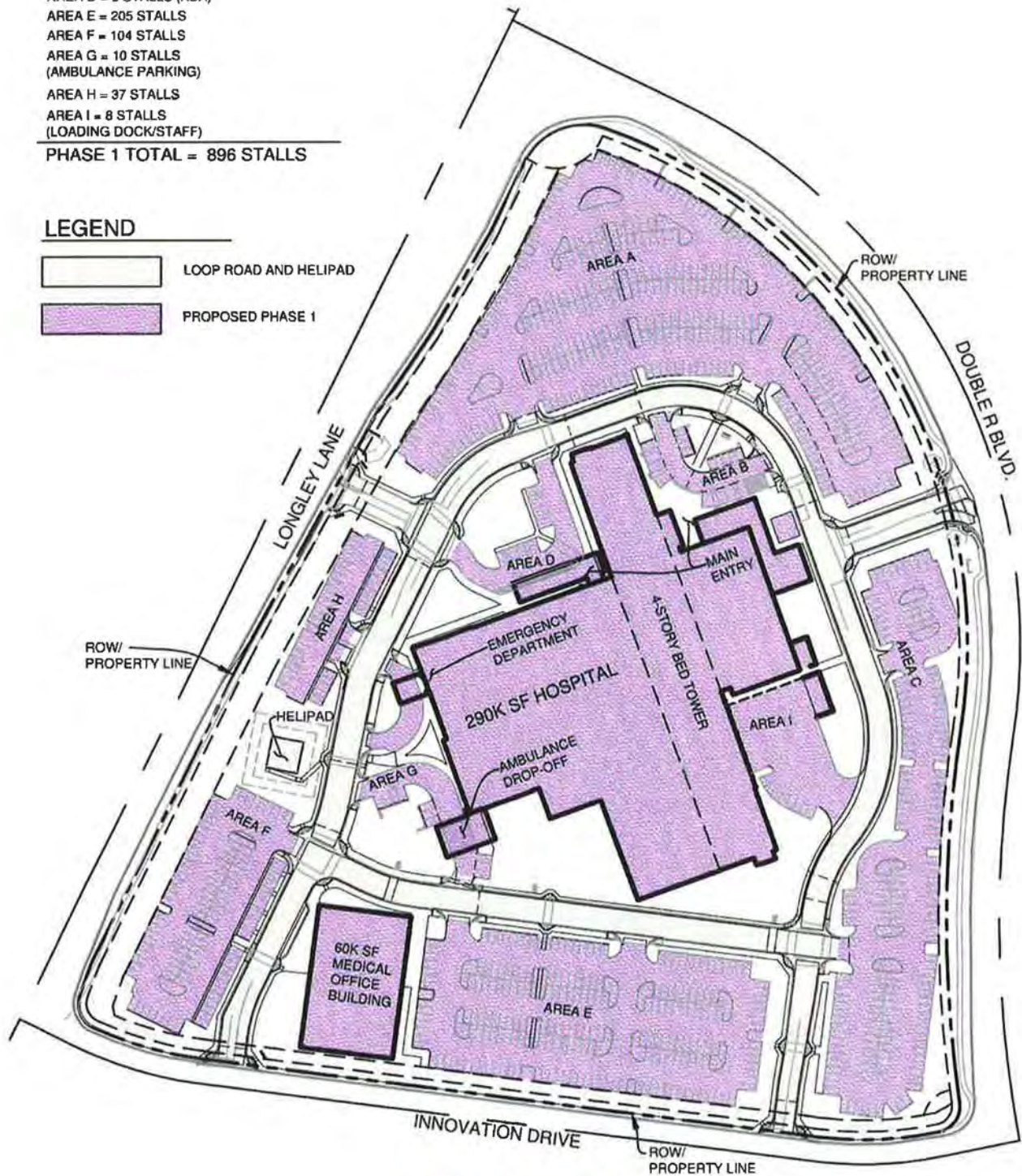
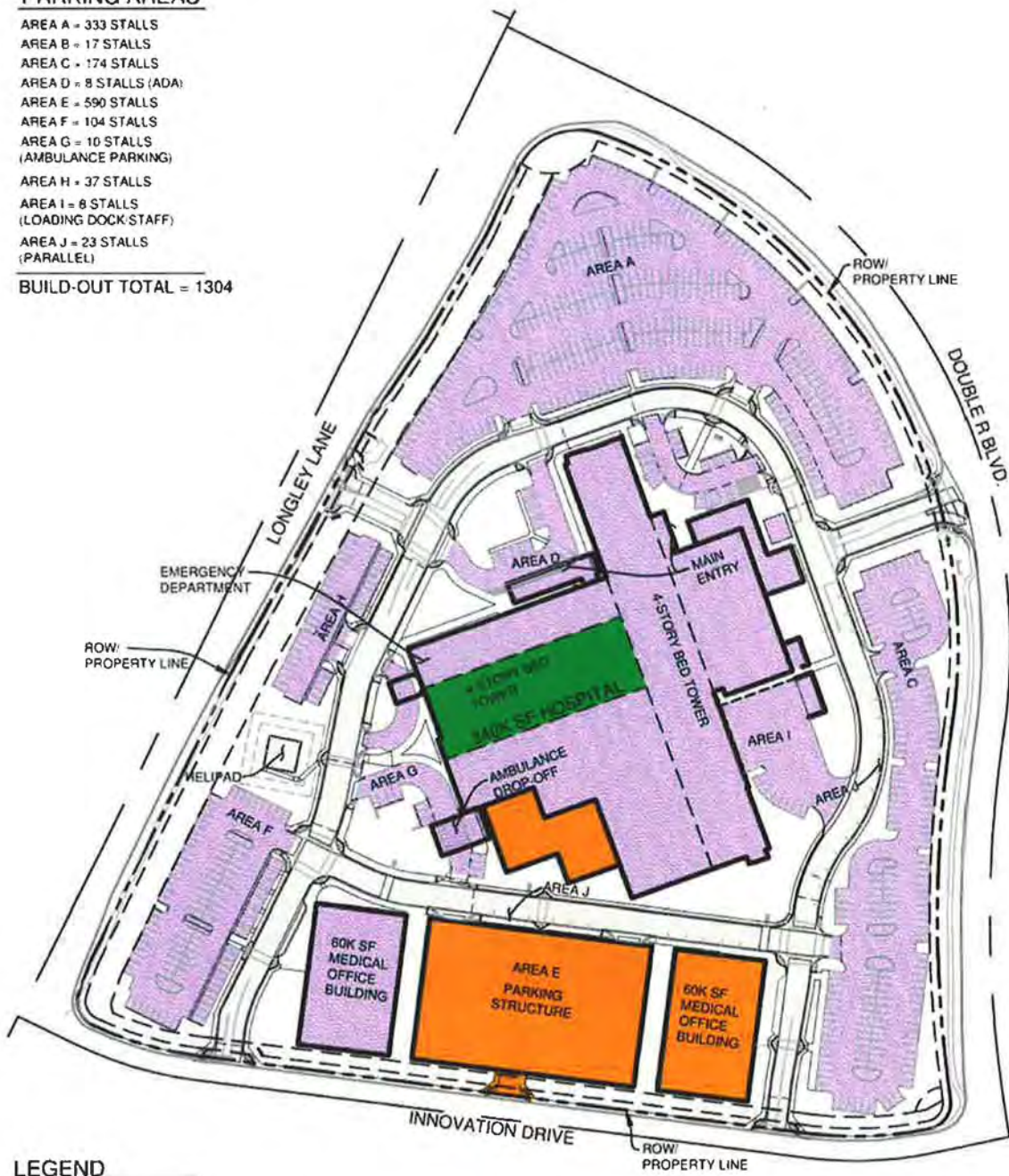


Figure 2. Phase 1 Site Plan

**PARKING AREAS**

- AREA A - 333 STALLS
  - AREA B - 17 STALLS
  - AREA C - 174 STALLS
  - AREA D - 8 STALLS (ADA)
  - AREA E - 590 STALLS
  - AREA F - 104 STALLS
  - AREA G - 10 STALLS (AMBULANCE PARKING)
  - AREA H - 37 STALLS
  - AREA I - 8 STALLS (LOADING DOCK STAFF)
  - AREA J - 23 STALLS (PARALLEL)
- BUILD-OUT TOTAL = 1304**



**LEGEND**

- LOOP ROAD AND HELIPAD
- EXISTING PHASE 1
- PROPOSED PHASE 2
- PROPOSED PHASE 3

Figure 3. Overall Site Plan

#### Administration

The Northern Nevada Sierra Medical Center PUD shall be administered by the Zoning Administrator or his/her designee as defined in the City of Reno Annexation and Land Development Code. The administrator shall have the authority to reasonably interpret and apply this PUD handbook. Universal Health Services, Inc. (UHS) or its authorized designee shall be the master developer in place from the first phase of development of the PUD. Should the master developer be designated or assigned to another entity, the assignee shall notify the City of Reno in writing and provide documentation of the change in entity. This master developer shall continue throughout the development of the PUD until and unless a master property owners association or other such entity is created to serve the role of master developer. Master developer rights may be assigned by use or categories, dependent on the underlying property ownership and previous assignment of declarant rights, which shall be disclosed to the City of Reno upon application for development permits. The role of master developer, for the purposes of this PUD, shall be:

- To prescribe and administer methods and procedures to ensure and control the quality of development that occurs within Northern Nevada Sierra Medical Center PUD;
- To maintain all common area improvements, storm drain, detention and/or other flood control facilities

- To dedicate public use easements to the City of Reno for pedestrian use along any boundary of the PUD (as needed).

Only the City of Reno, the property owner or its authorized designee may initiate an amendment to the PUD handbook.

#### Review Process

The construction of individual projects, including accessory uses shall follow the City of Reno building permit process. If a use requires a special use permit or site plan review, these processes shall precede the building permit process.

#### Appeals

The applicant or developer may appeal any decision, comments, or recommendations of the Zoning Administrator in accordance with RMC Section 18.06.208 - Appeals, as amended.

#### Conflicts

In the event of a conflict between these design standards and City Code, these standards shall govern development of Northern Nevada Sierra Medical Center. When a specific standard is not addressed by the PUD, then the applicable section of the Reno Municipal Code Title 18, as amended, at the time of review shall prevail.

#### Flexibility

The Overall Site Plan and Development Standards contained herein are intended to depict the general development vision for the PUD. Sufficient flexibility shall be allowed to permit detailed planning and

design at the time of actual development. The square footage of each building may be increased by up to 5% if it is demonstrated that additional area is necessary due to constraints and/or design considerations to accommodate this project, to the satisfaction of the Administrator. This provision shall not exceed a cumulative total of 5% for each building or use. Changes in excess of 5% shall require an amendment to the PUD Handbook. With each development application, the master developer and/or applicant shall provide an accounting of the overall square footage allocations approved to date.

The following conditions shall apply to the future development of Northern Nevada Sierra Medical Center and shall not be varied without an amendment to the PUD handbook:

- The maximum number of beds for the hospital shall not exceed 262 beds.
- The berming, screening and other limitations required along all boundaries, as described in landscape and berming sections of the PUD Handbook shall not be reduced or modified.
- Access to Double R Boulevard, Innovation Drive, and Longley Lane are restricted as conceptually shown in Figure 3 - Overall Site Plan, page 6.
- Left turning movements out of the site from the Double R Boulevard and Reno Corporate Drive intersection shall be

prohibited unless a traffic light is warranted and constructed.

Uses Requiring a PUD Amendment:

- Expansion of the Hospital beyond 262 beds
- Expansion of the Medical Offices above 120,000 square feet in total
- Expansion of the parking garage above 55 feet or a total of 590 spaces

Modifications

The Administrator shall have the ability to grant minor deviations as outlined in RMC 18.06.411(a)(1) – Minor Deviations, as amended. Deviations of 5% or more shall require an amendment to the PUD Handbook.

Infrastructure

Traffic

Project traffic, roadway infrastructure, and multi-modal facility needs are discussed in detail in the Transportation Impact Study prepared by Traffic Works (Appendix A of this PUD handbook). The trip generation is based upon an assumption of land uses and gross square footages. Note that the specific land use mix and building sizes could be revised, without affecting the traffic analysis or impacts, so long as the trip generation estimates used in the analysis are not exceeded and the intersection improvements are constructed consistent with the preliminary configurations utilized in the traffic study. Prior to issuance of the 1st Certificate of Occupancy for Phase 1 of the Hospital, the applicant shall complete the traffic signal improvements at the intersection of Longley Lane with Barron Way to the approval of the City. **The total project trips shall not exceed 7,804 Daily, 641 AM Peak Hour, or 809 PM Peak Hour without an amendment to the PUD handbook.** It is possible that with final development of Northern Nevada Sierra Medical Center, mainly for hospital use, the gross square footages for that land use category may exceed that which was assumed in the Transportation Impact Study (see Appendix A). Proposed buildings that are consistent with the approved traffic impact study may proceed to building permit, as applicable, with the provision of an updated trip generation letter.

Table 2. Trip Generation

Project Element	Daily	AM Peak Hour	PM Peak Hour
Hospital	3,468	355	380
Medical Offices	4,336	286	429
<b>TOTAL</b>	<b>7,804</b>	<b>641</b>	<b>809</b>

Sanitary Sewer Service

The site will be serviced by the City of Reno with regard to sanitary sewer and will be subject to Title 18.12.601 - Sewerage, as amended. There is a City of Reno 33-inch diameter sewer interceptor that runs thru the site from south to north, with stubs into the sewer main at several locations throughout the site. Refer to the Preliminary Sewer Report in Appendix C for a detailed description and analysis of sewer demands for the site.

Existing City of Reno public sewer infrastructure provides a direct connection for this project. An eight-inch sewer main line in Innovation Drive connects to a 33-inch sewer interceptor and then into Double R Boulevard. The medical office buildings and the overall site build-out will connect to the eight-inch main in Innovation Drive. The hospital will construct dual sewer main runs to collect the multiple lateral points from the building and connect to the 33-inch public sewer interceptor at existing manholes. In an attempt to provide actual sewer flow generation rates, actual data from existing hospitals owned by the applicant were used in the calculations.

As final site layouts are not known at this time, the Sanitary Sewer Study will be required to be updated with each building permit/application on the site to ensure that adequate facilities can continue to service the site. Any sanitary sewer facilities constructed to serve the project will be designed in conformance within the City of Reno Public Works Design Manual, as amended.

#### Water Service

The project lies within the Truckee Meadows Water Authority (TMWA) service territory as the purveyor for the project. TMWA waterlines exist within Longley Lane to the west and Double R Boulevard to the east and Innovation Drive to the south. The water facilities for the project will be designed and constructed to conform to TMWA standards, in conformance with Washoe County District Health Department requirements, and subject to Title 18.12.602 - Water and Fire Hydrants, as amended.

Fire Flows for the proposed buildings are still to be determined based on building materials, space calculations and fire suppression system design. TMWA staff has stated that their infrastructure and storage capacity is capable of serving this project.

#### Hydrology

An operations and maintenance manual shall be required with each site improvement permit to ensure that all private storm drains, detention ponds, and

drainage swales, etc. are properly maintained. This manual shall include a narrative to detail the operations and maintenance tasks, frequency of maintenance, access for maintenance, and provide a detailed description of the type(s) of equipment which are anticipated to be necessary for the operations and maintenance tasks to be completed. This manual shall be accepted by the Community Development Department prior to the issuance of the site improvement permit. This manual shall also be adopted as policy by the Master Developer, or designated equivalent entity responsible for storm drainage for the development.

The site has an approximate 1% upslope from the southwest corner at Innovation Drive and Longley Lane towards Double R Boulevard. A public storm drain runs from south to north across the eastern third of the site but that main line has limited capacity, contributes to the FEMA Flood Zone X mapped across the property, and is not intended to be utilized to convey on-site runoff from the site.

The site is divided into two main sub-basins. Those are collected by the storm drain pipes at Double R Boulevard and route runoff into the Reno Corporate Center master detention facility north of Barron Way. Those are sized to detain 100-year post-development peak flows from the project site to pre-developed levels. All phases of development will set finish floors above the

mapped Flood Zone X elevation and will generally allow for on-site runoff from impervious surfaces to travel as sheet flow to Low Impact Development (LID) water quality basins, swales and sand filters to treat the flows. These basins will also serve as detention facilities to provide additional flood mitigation. A Preliminary Hydrology Report prepared by Reno Engineering Corporation (Appendix B) discusses in greater detail the sub-basin delineation, conceptual hydrologic calculations, LID design considerations and hydraulic capacity assumptions.

Offsite drainage does not impact the site except in storms greater than the 100-year recurrence interval as indicated by the Federal Emergency Management Agency (FEMA) Rate maps for the site area. The entire site falls outside of any restricted zones as defined by FEMA.

A Technical Drainage Study will be required with each building permit/application on the site to assure that adequate facilities are available or can be provided to service the site in conformance with standards in place at the time development is proposed.

#### Fire Services

Prior to the certification of the PUD Handbook, the Master Developer will enter into a separate agreement with the City of Reno pursuant to which the Master Developer will purchase, or provide funding for the purchase, of a fully equipped aerial

apparatus ("ladder truck") to serve the subject site.

#### RTC Bus Stops

As part of the Pedestrian Circulation Plan shown in Figure 6, page 15, RTC bus stops are conceptually located on Innovation Drive and Longley Lane. These bus stop locations will be subject to review and approval by the Regional Transportation Commission (RTC) at the time of Building Permit for Phase 1 development.

#### Access and Circulation Plan

Primary access to the hospital parcel is served from Longley Lane and from Innovation Drive where a new traffic signal is warranted and proposed. The medical office area is served primarily from Innovation Drive. A more restrictive access but significant driveway is needed on Double R at Reno Corporate Drive. The Transportation Impact Study contained herein (Appendix A) addresses the potential access alternatives of all locations.

#### Internal Loop Road

There are six roadway sections shown on the Circulation Plan for the internal loop road (Figure 5, page 14). They are variations of the loop road as each section is adjusted for parking, sidewalk width, and functional needs.

Standards for the design of project entries and internal driveways are shown on Figure 5, and further described in Chapter 2 of this

PUD, shall apply to development of the project.

#### Pedestrian Circulation

The Pedestrian Circulation Plan shown in Figure 6 on page 15 was prepared to show a comprehensive pedestrian plan with connectivity to all elements of the site and connections to the external public sidewalks. Further standards are provided in Chapter 2. The width of each sidewalk is detailed in the requirements of each of the Internal Loop Road sections, shown in Figure 5 – Circulation Plan on page 14. Public use easements, if not already existing, will be required for all sidewalks located along City of Reno right-of-way, that are within the subject site.

#### Parking

By using reciprocal parking & access throughout the site, the hospital and medical office uses will share the existing on-site parking lot fields (see Figure 2 – Phase 1 Site Plan on page 5 and Figure 3 – Overall Site Plan on page 6). Parallel parking is allowed on the loop road, where designated, provided adequate fire access can be maintained. Parking lots shall be constructed to provide the minimum required total parking spaces. Specific parking locations are depicted in Figure 3 – Overall Site Plan on page 6, and standards are outlined in Chapter 2.

#### Helipad

A helipad is proposed for this project with the expressed purpose of patient transport

to and from the acute care facility with 30 landings and departures, on average, per month at ultimate hospital services build-out. The site plan of the overall medical campus has been designed with the location constraints and operational aspects of the helipad in mind (see Figure 7 – Helipad Exhibit, page 16). Specific standards for the construction and operation of the helipad are further described in Chapter 2.

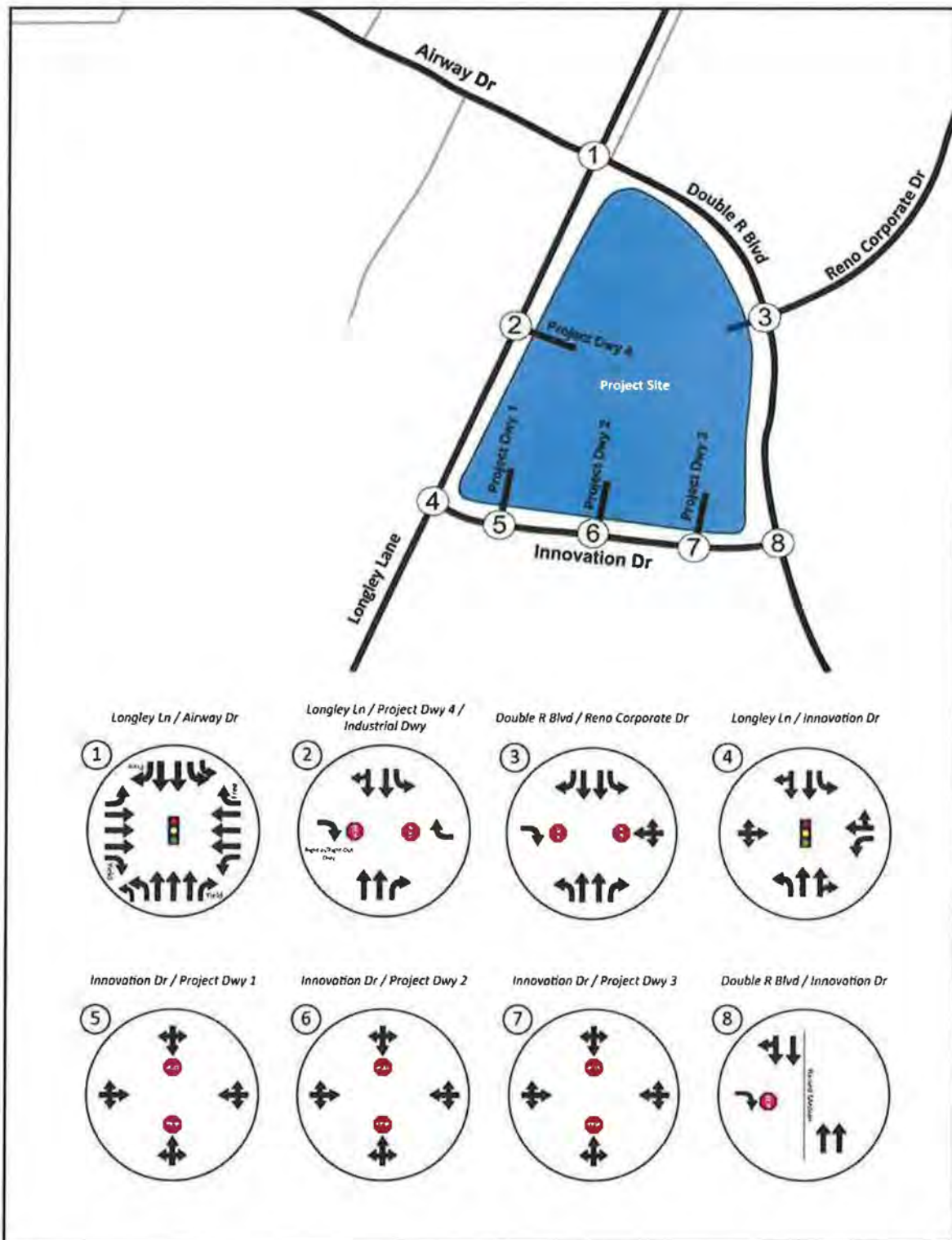


Figure 4. Traffic Exhibit

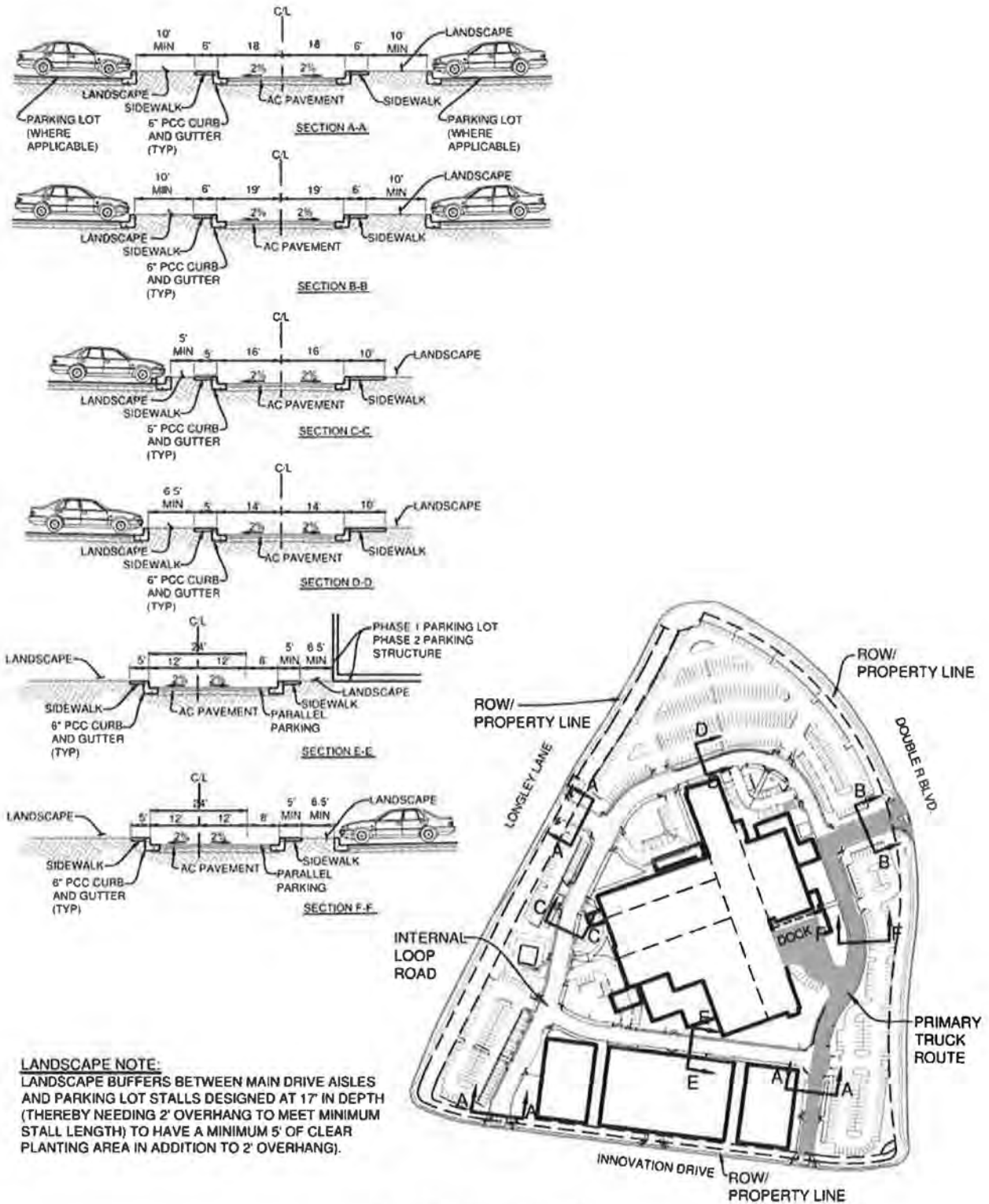


Figure 5. Circulation Plan

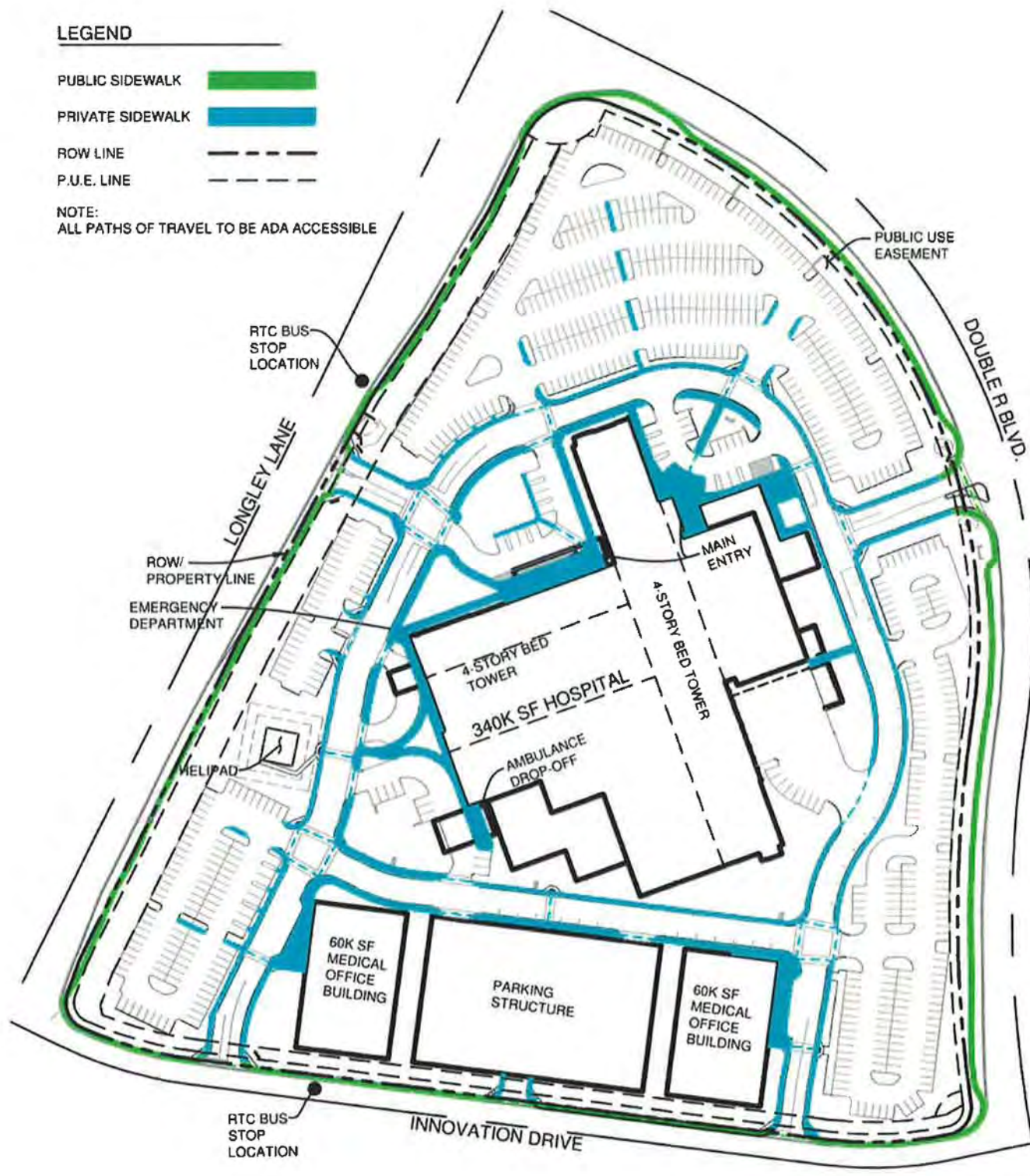
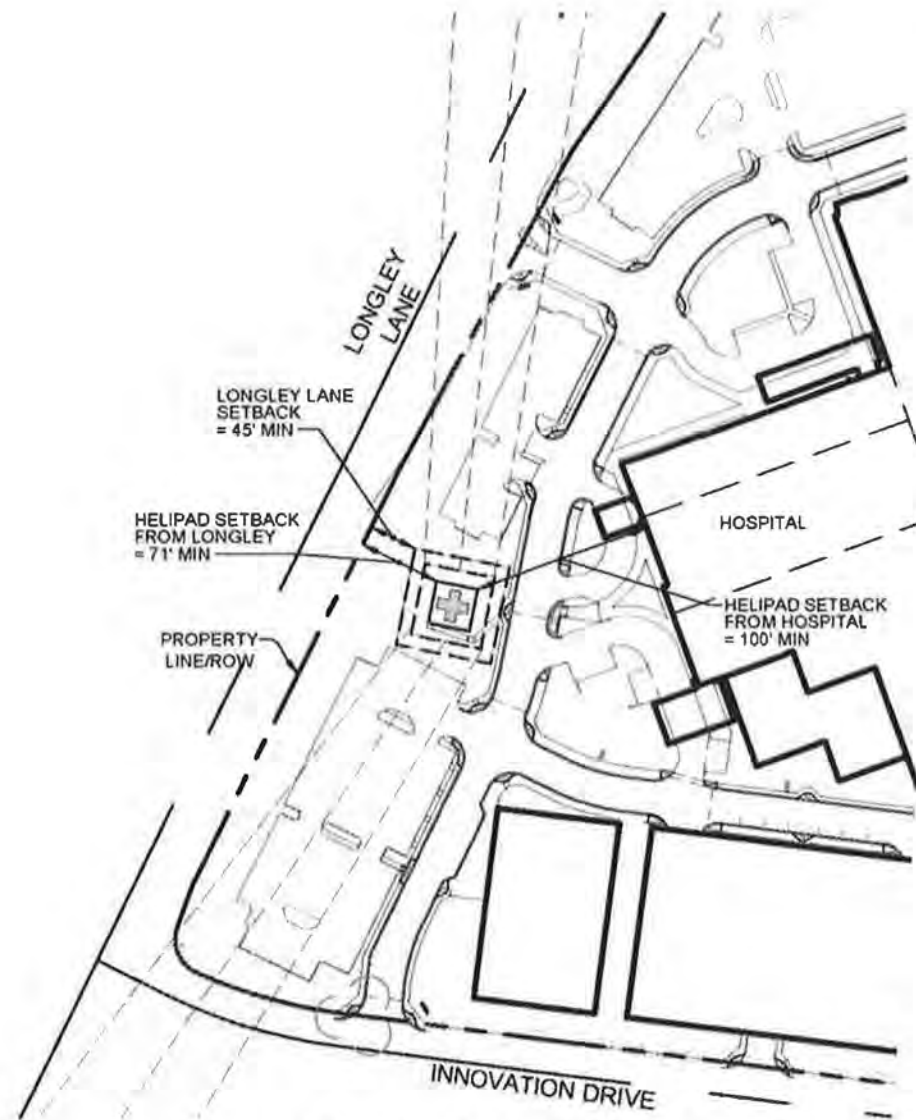
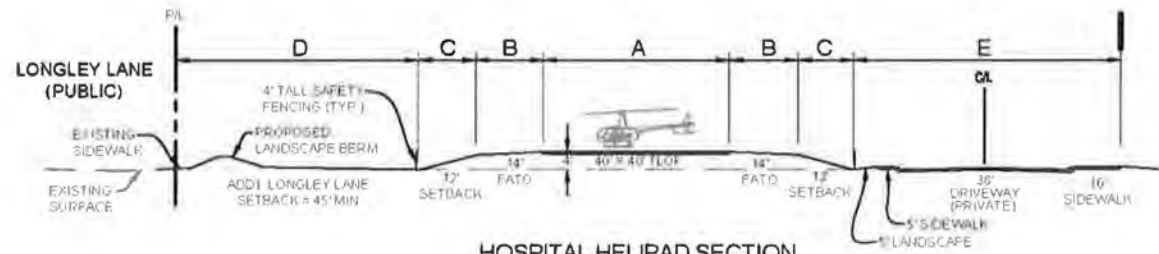


Figure 6. Pedestrian Circulation Plan



HOSPITAL HELIPAD PLAN VIEW  
NOT TO SCALE



HOSPITAL HELIPAD SECTION  
NOT TO SCALE

Figure 7. Helipad Exhibit

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**Chapter 2**  
**Development Standards**

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## 2. Development Standards

### Introduction

The following chapter addresses the development standards for Northern Nevada Sierra Medical Center and use categories, as shown on the Overall Site Plan in Figure 3 on page 6 of this handbook. Addressed within each land use category are the allowed uses, building height, setbacks, bulk, etc. that will apply to future development of those uses.

### Uses (General)

Any use not listed in a specific land use category are not allowed unless it is considered to be similar to a listed permitted use, to the satisfaction of the Zoning Administrator, per RMC 18.08.201(a)(4) – Similar & Prohibited Uses, as amended

Table 3. Permitted Uses

<b>Primary Uses</b>
Hospital
Medical or Professional Offices
Helipad
Health Care Clinical Space (urgent care, ambulatory surgery, wound care, etc.)
<b>Accessory Uses*</b>
Restaurant*
Laboratory
Retail (pharmacy, floral shop, gift shop, etc)*

\*Accessory Use Standards All accessory uses shall be located with access provided internal to the primary building. Direct access from the exterior shall be prohibited.

### Hospital

An overall site plan for the Hospital is provided in Figure 3 on page 6. This site plan shows the potential elements that may be included on this site, but this does not represent the final design, programming, or exact location of the hospital. The maximum total building height shall be 75 feet, including screen walls and penthouses.

### Medical Office Buildings (MOB's)

The Medical Office Buildings are located on the south end of the site near Innovation Drive. Medical and professional office uses are intended to support the hospital. The following standards shall apply to development of the medical office buildings.

The medical office shall consist of a 20,000 square foot footprint adjacent to Innovation Drive and be limited to 55 feet in height. The office buildings shall be allowed to operate between 5:00 a.m. and 11:00 p.m.

### Site Design Standards

The developer shall incorporate, to the maximum extent practical, best management practices to reduce impacts to the environment due to construction activities. Typical requirements are as follows:

- The developer shall require the construction site to prohibit unnecessary engine idling.
- The Contractor shall prohibit construction equipment with Tier 0 or 1 diesel engines, and require Tier 3 or 4 diesel engines.

**Internal Driveways & Project Entries**

The following outlines the minimum standards for project entries and internal driveways:

**Project Entries (See Figure 5, page 11)**

- Driveway Width: 36 feet
- Entry Landscaping: 10 feet for a minimum of 30 feet from property line at entry
- Sidewalks: 6 feet

**Internal Driveways (See Figure 5, page 11)**

- Driveway Width: 24 feet
- Landscaping buffer: 5 feet
- Sidewalks: 5 feet

When driveway includes parallel parking, minimum driveway width shall be increased by 8 feet to accommodate parallel parking on one side of the street only.

**Parking**

Parking shall be provided and constructed in accordance with the ratios shown in Table 4A – Minimum Parking Standards.

Table 4A. Minimum Parking Standards

Use	Parking Rate (spaces per s.f.)
Hospital	1 per 500
Medical Office	1 per 200
Professional Office	1 per 200
Health Care Clinical Space (urgent care, ambulatory surgery, wound care, etc.)	none
Helipad	none
Accessory Uses*	none
<b>Total</b>	---

Table 4B. Parking Summary

Building Size (in s.f.)	Phase I	Phase II + III	Total
290,000 (Hospital)	580	0	580
60,000 (Hospital)		120	120
60,000 (Office)	300	0	300
60,000 (Office)		300	300
<b>470,000</b>	<b>880</b>	<b>420</b>	<b>1300</b>

A minimum of 2% of total parking shall be dedicated to electric vehicles and include charging stations.

It is anticipated that Phase 1 parking will be provided in surface parking lots. Parking spaces in excess of the required standards shall be located in the parking garage to the maximum extent practicable. Parking in excess of 5% of the calculated standards is not allowed.

**Clean Transportation Standards**

The project is a medical campus that deals with emergency situations. Parking rates provided shall be maintained to ensure adequate parking in all situations. It is the intent of this project to also incorporate standards that minimize vehicle trips/parking needs, vehicle miles traveled, and tailpipe emissions.

#### Employee Trip Reduction (ETR)

Northern Nevada Sierra Medical Center (NNSMC) shall incorporate the Regional Transportation Commission's (RTC) ETR Best Practices, such as Bus Pass Subsidies, RTC Vanpool, and RTC Rideshare. NNSMC shall coordinate with RTC and investigate partnering with the RTC Smart Trips program to facilitate implementation the above practices.

- **Electric Vehicle Parking:** The parking facilities for NNSMC shall have infrastructure installed with "Electric Vehicle (EV) charging station" stalls for 2% of the overall required parking. Electric Vehicle stalls shall be designed with typical charging facility station dimensions in various locations to be determined at the time of permit.

#### Helipad Design and Operation

The design and operation of the helipad shall incorporate all requirements of the FAA and the Reno-Tahoe Airport Authority to ensure public safety both at the facility and with commercial air traffic. Coordination and cooperation with local air ambulance and emergency life flight operators (REMSA, etc.) for flight operation procedures is also suggested.

#### Helipad Design Standards

The following design standards and operational aspects shall be employed:

Helipad zones are depicted in Figure 7, page 16 :

Zone A: Helipad Area is the Touchdown and Liftoff Area (TLOF) = 40 feet x 40 feet dimensions

Zone B is the Final Approach and Takeoff Area (FATO) shall be a 14 foot setback on both sides of the TLOF

Zone C is the FATO safety setback area. It shall be 12 feet on both sides of the FATO setback line.

Zone D is addition setback from Longley Lane right-of-way. Its shall be a minimum of 45 feet.

Zone E is the roadway section on the east side of the Helipad that is 56 feet in width.

Helipad setback to the hospital: 100 feet minimum

Prohibited materials: Mulch, pea gravel, pebbles, or other materials that can be affected by rotor wash.

The Approach/Departure "surface" is an 8:1 slope that extends upwards from the edge of the FATO in the typical landing and take-off directions and shall be clear of all obstructions, including light poles, trees, etc.

- See Landscaping and Lighting Standards in this Chapter for additional verbiage relating to these requirements. Also, see Figure 7 – Helipad Exhibit for a depiction of these requirements and Appendix E for approvals from the FAA.

### Building Standards

The size and geometry of the hospital building design is critical to providing the best patient care experience. And, the planned new hospital incorporates architectural variety, scale changes, color accents, ample glass, and unique wall patterns. Additionally, since the project site is within the City of Reno's Airport Noise Exposure Overlay District buildings will be constructed to decrease decibel levels generated by aircraft from 75-80 dBA to a maximum of 45 dBA within buildings per RMC 18.08.402 - Airport Safety General Overlay Districts, as amended.

### Hospital Architectural Standards

The intent of these standards is to encourage interesting and scale-setting features such as offsets, canopies, glazing, color, and wall textures on large, multi-story buildings and to prevent the use of large blank surfaces. The hospital structure shall conform to the following standards:

### Hospital Building Heights

Maximum building height shall be limited to 75 feet as measured to the top of building.

### Hospital Setbacks

#### Hospital to Longley:

30-foot setback for 50-foot building height;

100-foot setback for 75-foot building height

#### Hospital to Double R:

30 foot setback for 50 foot building height;

- 100-foot setback for 75-foot building height

#### Hospital to Innovation: 25 feet

#### Separation Between Buildings: 20 feet

No parking or outdoor activities are allowed south of the medical office building area between Innovation Drive and the landscape buffer.

Primary public entries shall be identified with architectural elements such as canopies, recesses, protrusions and other offsetting elements.

#### Building articulation:

- o Ground Floor Plan – Perimeter walls shall have a minimum of one offset of at least 5% of the overall building length per 200 feet of wall length.
- o Level 2 and above – Perimeter walls at the upper floors (2 and up) shall have a minimum of one offset of at least 2% of the overall building length per 250 feet of wall length. Walls shall have more than one color, which may be in the wall material, incorporated in window spandrel panels.
- o Elevations – The roof line of each primary elevation shall have a minimum of one offset of at least 5% of the total building height per 200 feet of elevation length.
- o Glazing – Portions of each primary elevation beginning at the first occupied floor above grade and higher shall have a minimum glazed area of 20% of the wall area. Spandrel panels constructed as part of the same glazing system

and contiguous with transparent glazing shall be considered part of the glazed area.

- Parapet walls or other architectural features may extend above the roof line to screen rooftop mechanical equipment from view at ground level.
- Four-sided color elevations shall be provided at the time of each building permit.

#### MOB and Parking Structure Architectural Standards

The intent of these standards is to encourage interesting and scale-setting features such as offsets, canopies, glazing, color, and wall textures on large, multi-story buildings and to prevent the use of large blank surfaces. The MOB and Parking Structure shall conform to the following standards:

No parking or outdoor activities are allowed south of the medical office building area between Innovation Drive and the landscape buffer.

Building Articulation standards for the MOB and Parking Structure shall conform to RMC 18.12.301 - Generally Applicable Site and Building Design Standards (a) Building Articulation and related subsections, as amended.

#### Screen Walls

The screen walls are intended to screen mechanical equipment, emergency generators, waste management containers and compactor, and the loading dock at or adjacent to the hospital (see Figure 11 – Screen Wall Exhibit on page 26). Wall type variation and materials shall be consistent throughout the project.

- Mechanical Equipment shall be screened by a wall or other permanent architectural element so that the equipment is fully screened from view from surrounding public roadways.
- Loading areas shall be screened by a wall, other permanent architectural element, or landscape plantings so they are screened from view from surrounding public roadways.



2 ELEVATION - NORTH



1 ELEVATION - SOUTH

Figure 8. North & South Hospital Elevations



2 ELEVATION - WEST



1 ELEVATION - EAST

Figure 9. West & East Hospital Elevations



Figure 10. Hospital Building 3-D Perspective

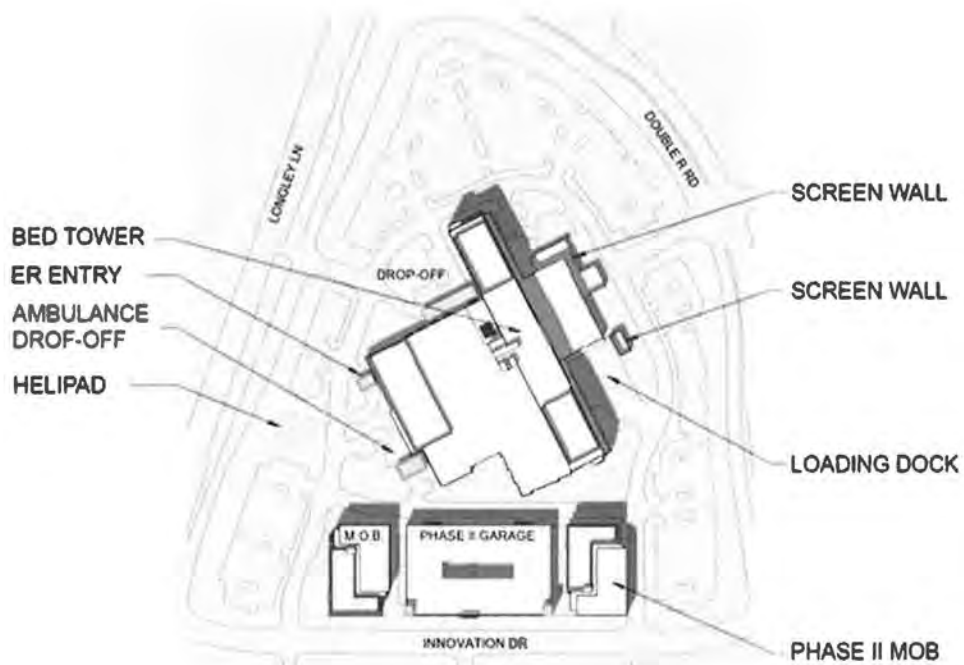
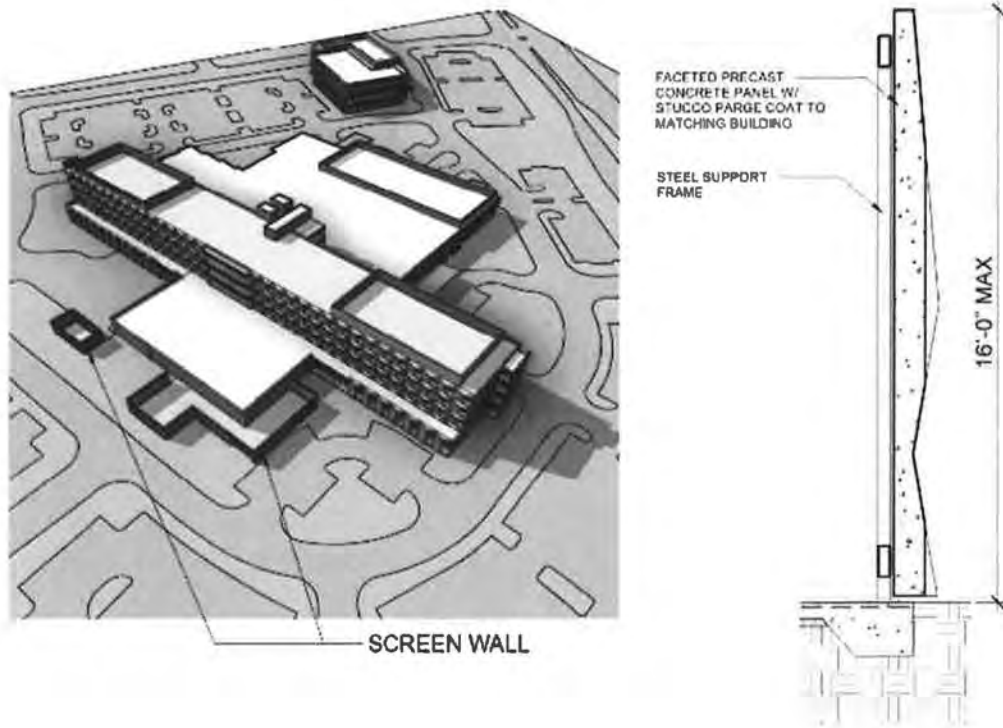


Figure 11. Screen Wall Exhibit

## Signage

### Building Mounted Signs (Types D, E, F, and G)

Building mounted signs may be affixed to any permanent architectural element including but not limited to walls, canopies, parapets, penthouse walls, and mechanical screen walls. Such signs shall not extend above the silhouette created by architectural building element on which they are mounted.

All building mounted signs shall be reverse channel, individual letter type with halo-type lighting.

Maximum height of any individual character or figure shall be 4 feet 6 inches.

Maximum total area of building mounted signs on each primary elevation shall be limited to 1% of the total area of the associated elevation. Square footage of elevations shall be calculated as the total projected wall area facing a given direction regardless of wall plane offsets.

Area of wall and roof mounted signs shall be calculated based on the sum of the area of individual letters and characters.

Proposed building mounted signs:

Type D - (2) primary building wall mounted signs

(1) on each longitudinal elevation.

4 feet 6 inches maximum letter/figure height, 150 square feet total.

Type E - (2) secondary building wall mounted signs

(1) on each transverse elevation at the stair towers.

4 feet 6 inches max letter/figure height, 160 square feet total.

Type F - (1) Emergency room sign. 100 square feet maximum

4 feet 6 inches max letter/figure height, 90 square feet total.

Type G - (1) Ambulance Sign. 100 square feet maximum

4 feet 6 inches maximum letter/figure height, 90 square feet total.

Building mounted sign area totals:

#### North Elevation

(1) 160 square feet sign / 17,970 total projected building area = **0.89%**

#### East Elevation

(1) 150 square feet sign / 40,695 total projected building area = **0.36%**

#### South Elevation

(1) 160 square feet sign / 17,263 total projected building area = **0.92%**

#### West Elevation

(1) 150 square feet sign + (2) 90 square foot signs / 40,695 total projected building area = **0.81%**

### Monument Signs (Types A, B, and C)

Monument signs shall be constructed of materials consistent with the building it

serves. Monument signs shall have a full base and shall not be constructed with exposed poles. They are to be self-supported, free-standing style signs with internally lit lettering and figures.

Proposed monument signs (see Figure 12, Sign Location Map, page 29):

**Type A - Primary monument sign (1)**

Located at the corner of Longley Lane and Double R Boulevard

(1) large primary monument sign limited to 15 feet in height x 8 feet in width is permitted on the site.

**Type B - Secondary Monument signs (6)**

(6) secondary monument signs limited to 6 feet in height x 8 feet in width at access points and intersections surrounding the site are permitted

**Type C - Wayfinding signs (4)**

(4) Wayfinding signs limited to 4 feet in height x 5 feet in width in the interior of the project site are permitted.

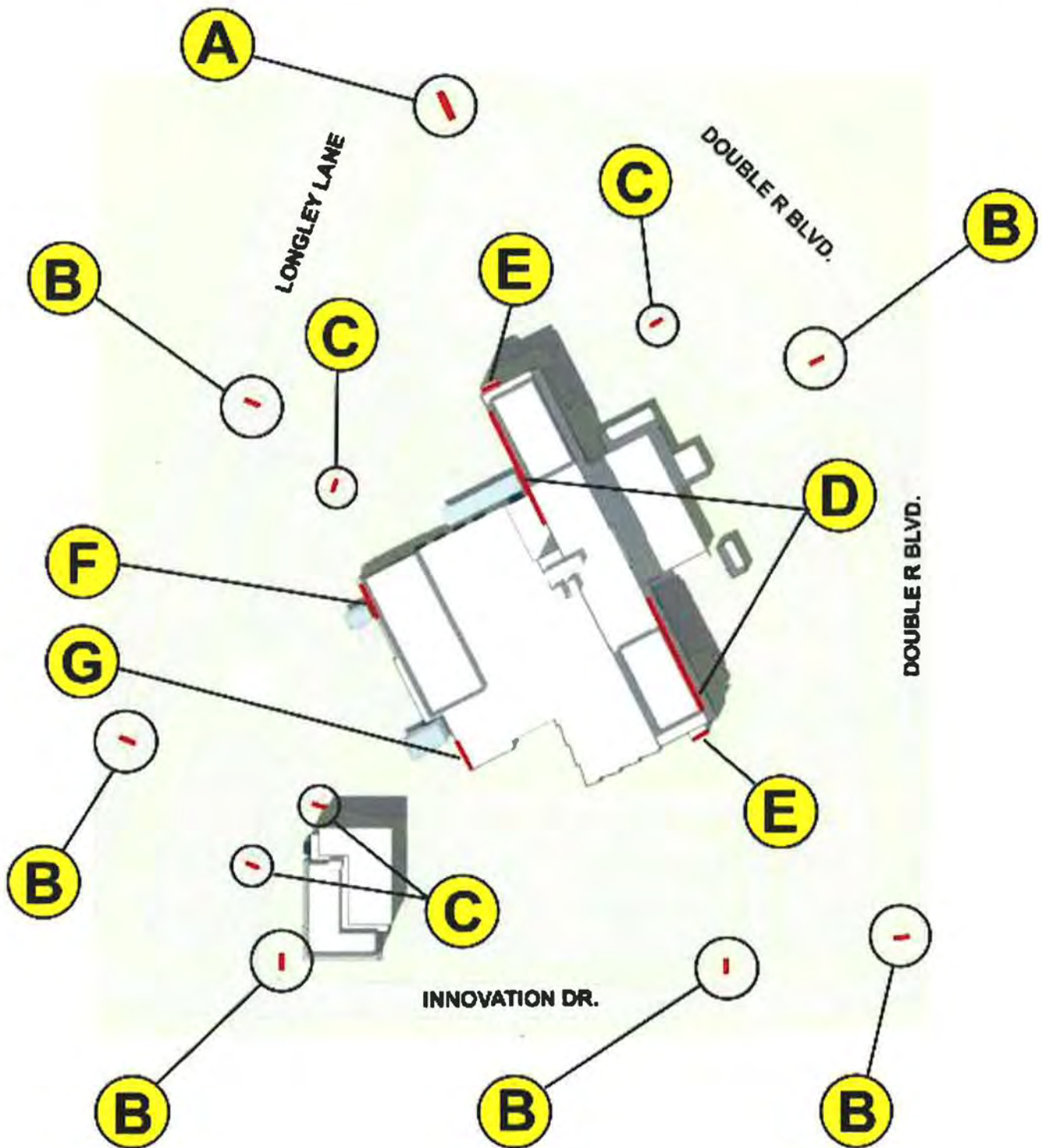


Figure 12. Sign Location Map

## Landscaping Standards

General requirements for the overall project shall include the following:

1. Protect/provide landscape berm on Double R Boulevard
2. Provide landscape berm on Longley Lane
3. Provide a 20-foot-wide landscape buffer area between Innovation Drive and the proposed Medical Office Buildings and Parking Garage
4. Prepare and execute a Tree Preservation Plan for existing mature trees
5. Provide outdoor amenities to serve the medical campus uses and augment the site

### On-Site Landscaping Standards

Area: ±22.2 Acres

Required landscape area: 20% of site or +4.44 Acres

Trees required: 1 tree per 300 square feet

Shrubs required: 6 per tree with 25% of the shrubs as large, five-gallon or larger size, and 75% of the shrubs as small, one-gallon or larger size.

Tree Mix: 70% large trees and 30% small trees.

Tree Sizes: Large deciduous trees shall be a minimum of 2.5-inch caliper, small deciduous trees shall be a minimum of 1.5-inch caliper. Large Evergreen trees shall be a minimum of 10 feet in height, small evergreen trees shall be a minimum of 6 feet in height. Specimen trees must have a minimum height of six (6) feet. Multi-trunk trees shall have a minimum of three trunks and the smallest trunk shall have a minimum

caliper of ¾ inch. Specimen trees shall be counted as small trees.

Parking area landscape: 25 square feet/stall with the ten square feet/stall of additional landscape required for all stalls in excess of 600 incorporated into the site's 20% of landscape area. Additionally, a 2-foot berm (or equivalent screening mechanism) shall be incorporated into the ten-foot landscape buffer zone between separate parking fields.

Parking lot trees required: 1 tree per 10 stalls

The required on-site landscape areas are shown on the Preliminary Landscape Plan in Figure 13 on page 32.

### Frontage Landscape and Buffering

The frontages located adjacent to Longley Lane, Double R Boulevard, and Innovation Drive shall be fully landscaped. All landscape perimeter berms and buffers shall be approved and installed in accordance with the requirements discussed within this PUD handbook located along the west, east, and south boundaries of the PUD.

Existing landscaping and berms along Double R Boulevard, Innovation Drive, & Longley Lane are desirable assets. They will be impacted by development of this parcel, but shall be replaced and augmented in areas not slated for removal as much as is practical. An exhibit shall be provided at time of initial submittal demonstrating care in maintaining, preserving, or replacing these assets.

All new or replacement landscape berms and/or screening of parking lots along the Longley and Double R frontages shall generally be placed within the landscape buffer areas between the right of way line, behind sidewalks, and at back of parking lot area curbs, where site grading and aviation easement height restrictions allow (See below). The berm side slopes shall not exceed 3:1 unless armored or reinforced per City Public Works design standards, with a general height of four (4) feet. Width shall vary based on the side-slope ratio, but a width shall not exceed 40 feet. Measured berm height shall include screening landscape materials, for a combination of terrain and landscape modification to achieve overall parking lot screening as seen from the adjacent public streets. Screening of parking lots and buildings along Innovation Drive shall be provided through a combination of street trees and an evergreen screen located within the approximate 25-foot-wide landscape buffer.

Street tree requirements along frontages: One large tree for every 30 lineal feet of frontage, and credited towards landscape trees required. Existing trees identified to be preserved shall count toward this requirement. Tree preservation of all existing trees shall be per City of Reno Municipal Code 18.12 .504 - Replacement of Trees/Penalty for Removal, as amended.

Plan views and sections of the above frontage buffer and screening standards are

shown in Figures 14, 15, 16, and 17 in the following pages.

#### Helipad Landscaping Considerations

Any existing or proposed trees within approximately two hundred (200) feet of and located under the helicopter helipad access area that are to be in the adjacent landscaped and parking areas shall have a maximum growth height of no taller than twenty feet Existing trees within 200 feet of the hospital may be removed if their height exceeds 20 feet. No shrubs or plant material taller than two feet shall be planted within the clear zones of the helicopter 'helipad' access area, in order to prevent hazards to air navigation.

# NORTHERN NEVADA SIERRA MEDICAL CENTER



Figure 13. Preliminary Landscape Plan

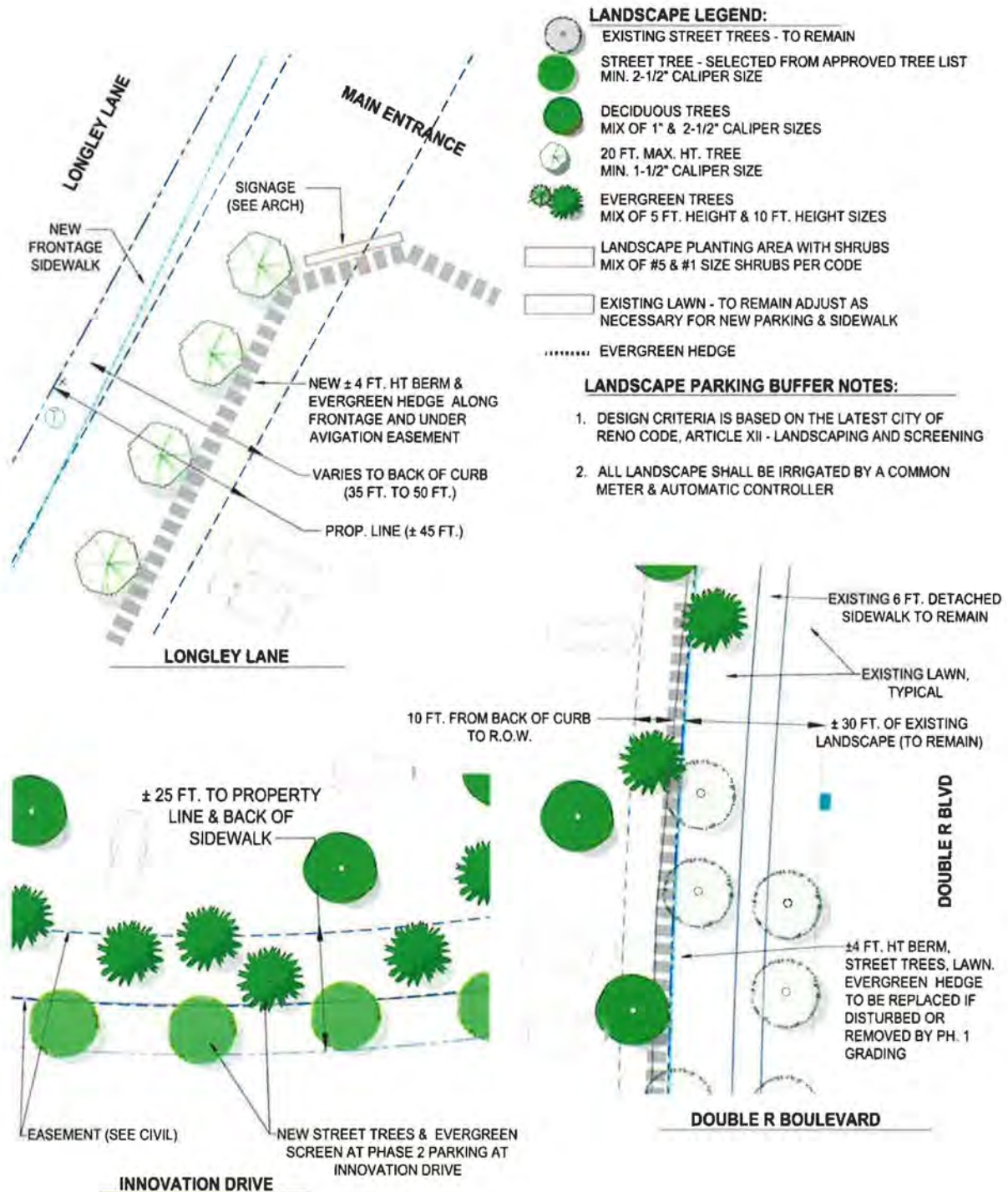


Figure 14. Plan View Berm Exhibit

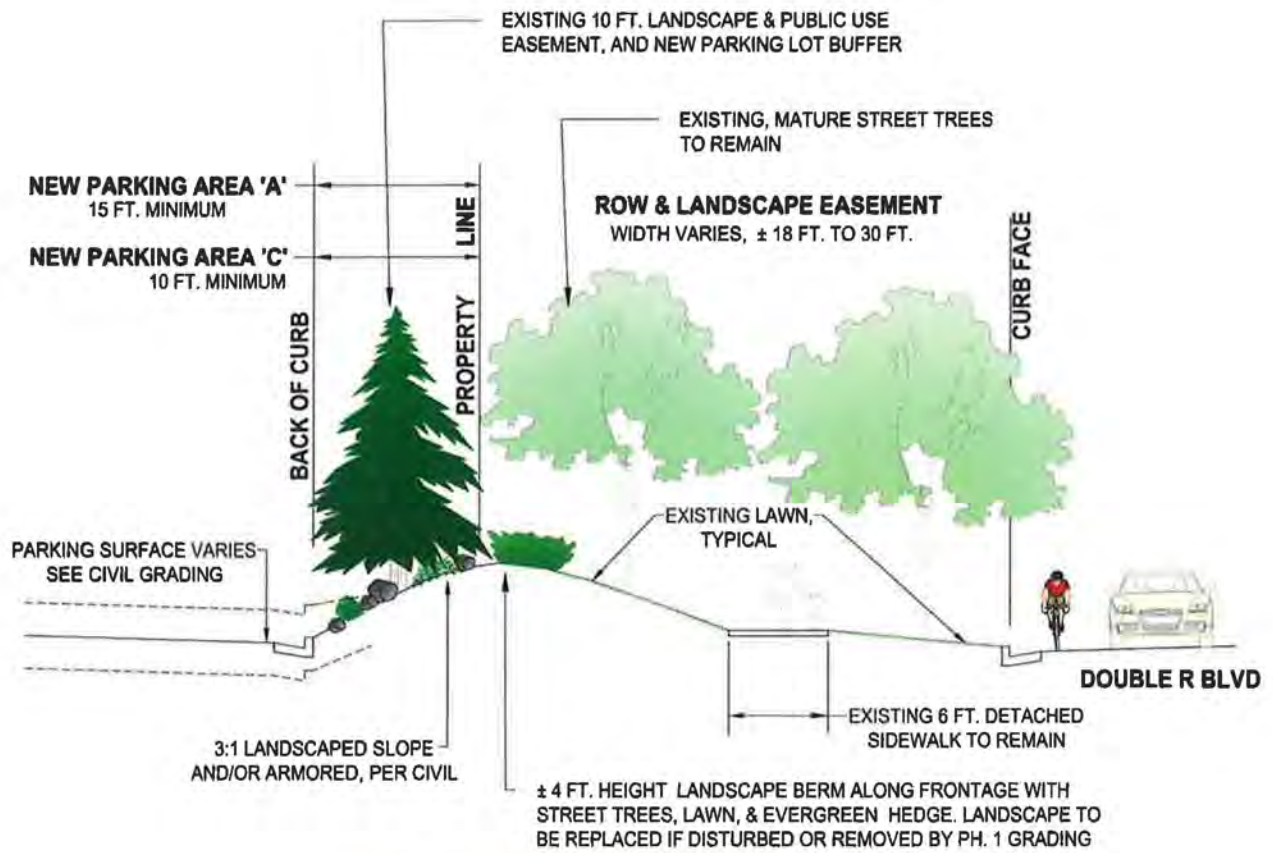


Figure 15. Double R Boulevard Landscape Section

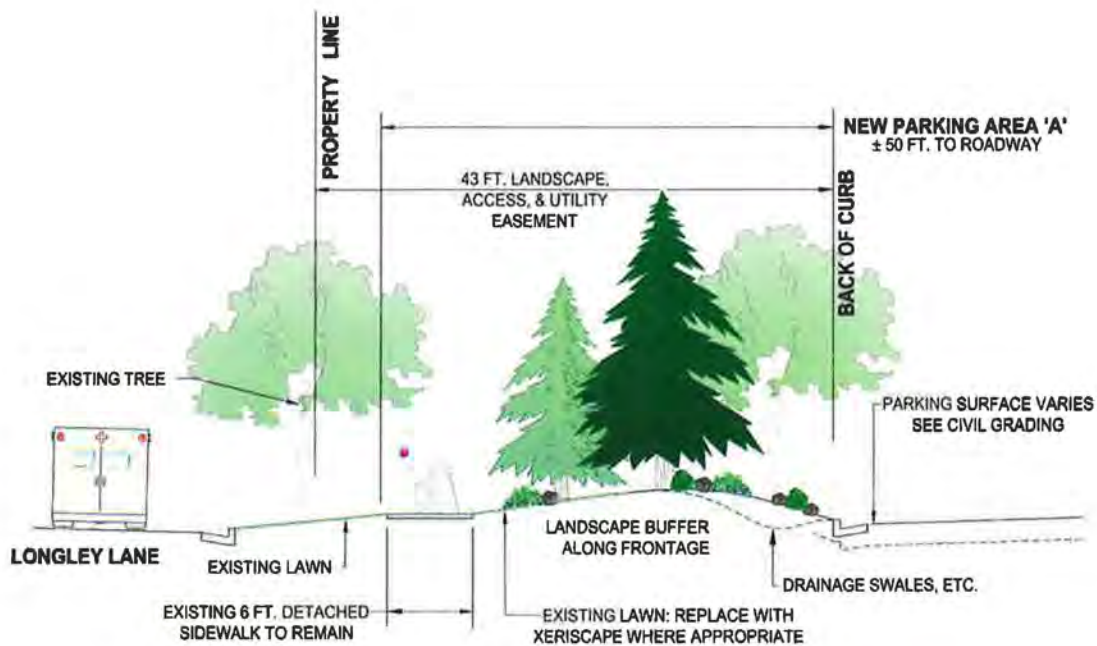


Figure 16. Longley Lane Landscape Section - North of Main Entry

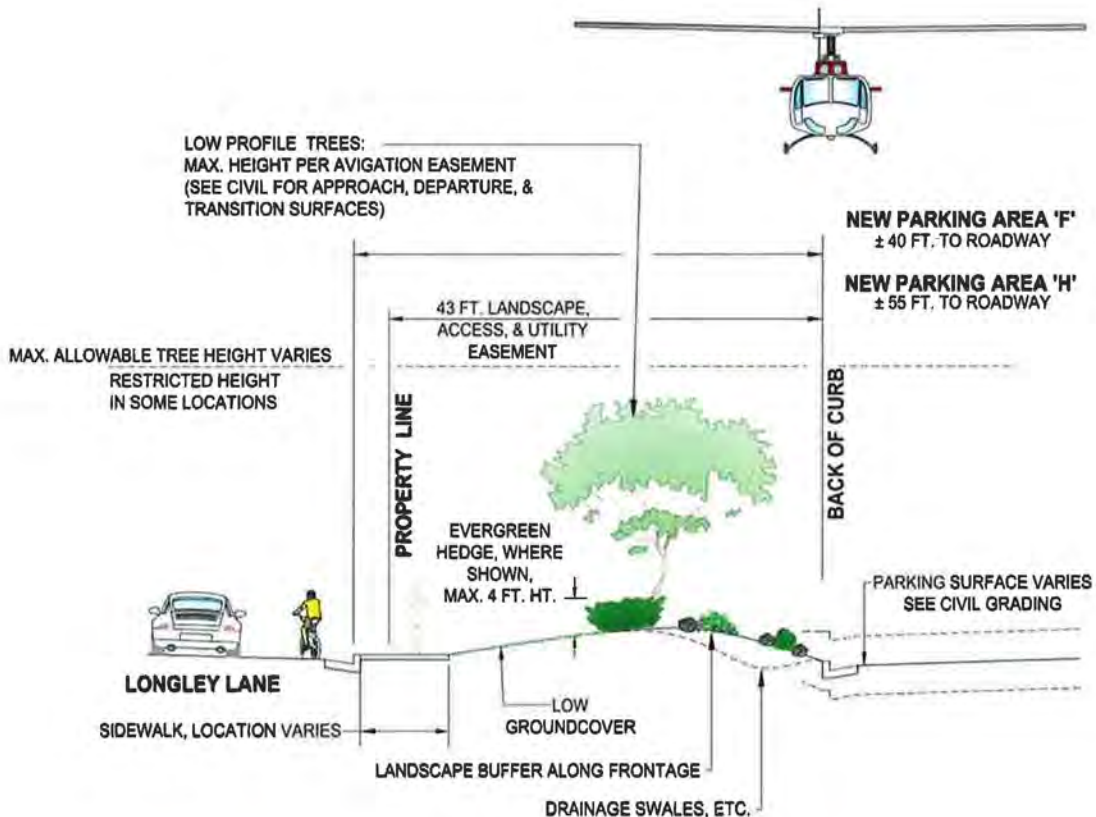
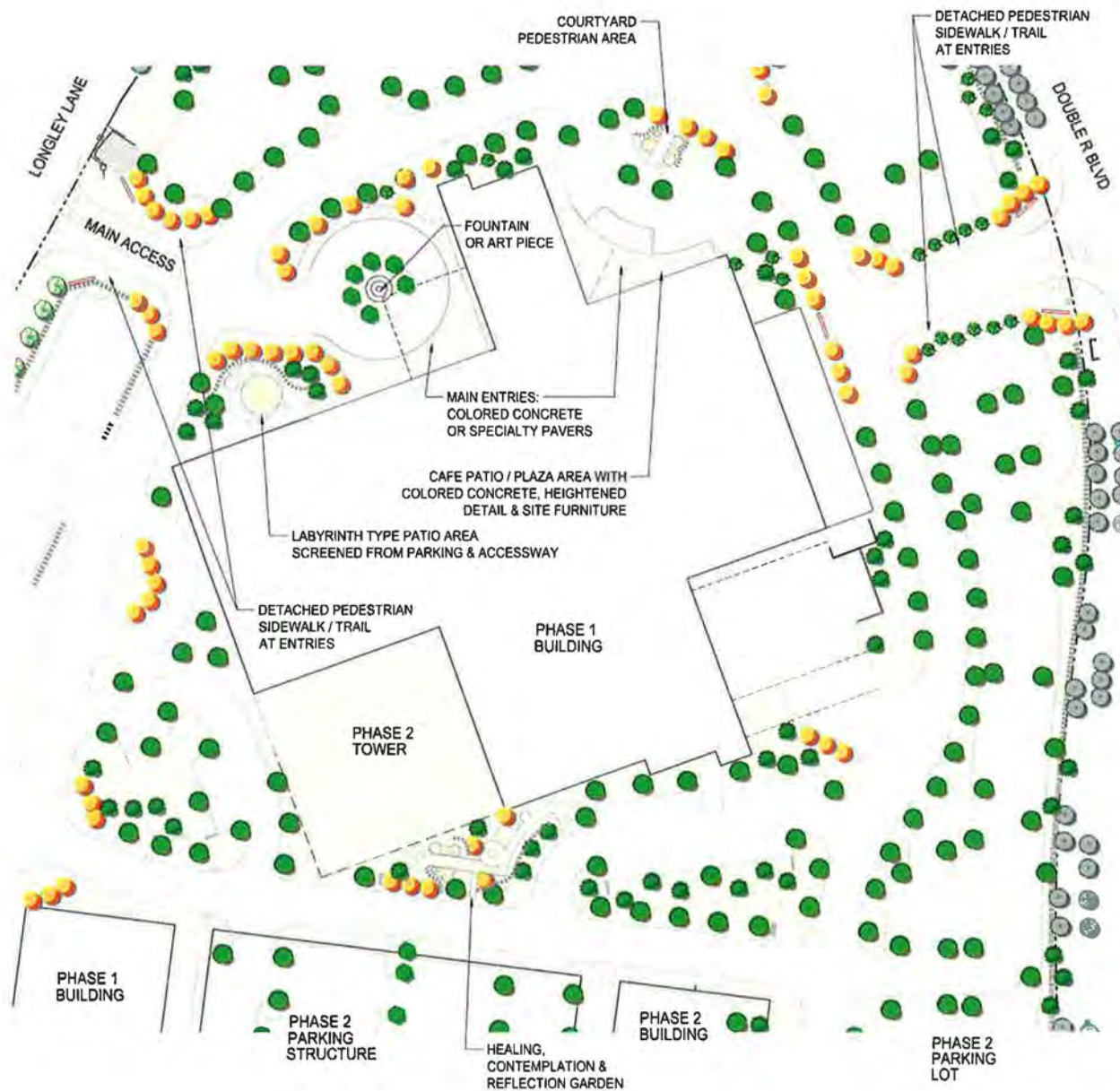


Figure 17. Longley Lane Landscape Section - South of Main Entry



AMENITY NOTES:

1. AMENITIES & COURTYARDS ARE CONCEPTUAL. SELECTION OF ART OR AMENITIES SUBJECT TO OWNER'S DISCRETION.
2. LOCATIONS MAY SHIFT DUE TO SITE GRADING & DRAINAGE CONSTRAINTS

Figure 18. Outdoor Amenities Plan

### Lighting Standards

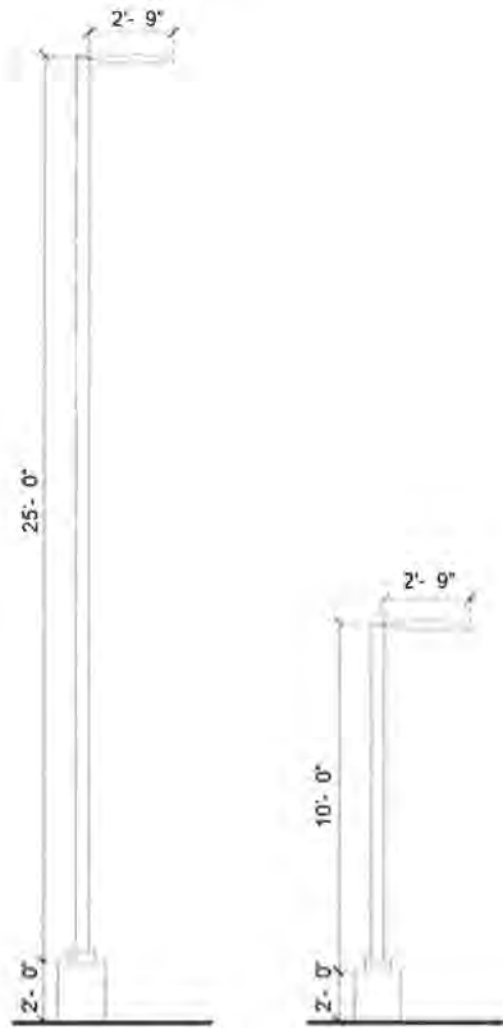
These Lighting Standards establish minimum criteria for the development of parking lot lighting, and pedestrian walkway lighting. This standard is established to provide visual continuity, lighting continuity and to provide lighting that enhances the facility while maintaining safe and secure nighttime environments.

#### Height, Placement, and Character

- **Height:** Maximum height of poles shall be 25 feet for parking lots. Pedestrian walkways and areas near buildings shall have a maximum pole height up to 10 feet. Both pole types may include a pole concrete base up to 2' in height. Both pole types shall be subject to photometric performance to determine precise locations and heights. Further, light pole height restrictions in the Departure and Approach surface of the helicopter flight path are shown in Figure 7 – Helipad Exhibit.

- **Placement:** The placement, intensity, height and direction of all light fixtures installed for landscape purposes, parking lot illumination, building facade, or pedestrian walkway illumination shall be consistent with the architectural scale of the building and designed to minimize light trespass at the property boundary.

- **Light Trespass:** All luminaires shall be full cutoff dark sky compliant, using cut-off fixtures, refractors, or housing shields to eliminate light spillover



**TYPICAL PARKING LOT  
SITE LIGHTING**

**TYPICAL PEDESTRIAN  
SITE LIGHTING**

*Figure 19. Typical Site Lighting*

- **Glare:** Landscape lighting shall be soft, unobtrusive and directed and/or shielded to prevent glare.

- Character: General area lighting poles and fixtures shall be compatible with the architectural character of the lighting standards used along the rights-of-way.  
General area lighting poles and fixtures shall be compatible with the architectural character of the lighting standards used along the rights-of-way.

## Appendices:

A: Transportation Impact Study

B: Preliminary Hydrology Report

C: Preliminary Sewer Report

D: Legal Description

E: FAA Approval Letters – Determination of No Hazard to Air Navigation (one letter each for the Hospital and for the Medical Office Buildings), and FAA Helipad Approach/Departure Plan Exhibit

F: Phase 1 Environmental Site Assessment

G: Wetlands & Waters of the U.S. Assessment

H: Council Decisions, Zoning Ordinance, Certification Letter, Regional Conformance Review, and Restrictive Covenant

# Appendix A

## TRANSPORTATION IMPACT STUDY for NORTHERN NEVADA SIERRA MEDICAL CENTER

March 30, 2018

PREPARED FOR:

Universal Health Services, Inc.

PREPARED BY:



## **YOUR QUESTIONS ANSWERED QUICKLY**

### **Why did you perform this study?**

This Transportation Impact Study evaluates the potential impacts associated with the proposed Northern Nevada Sierra Medical Center project. This study of potential transportation impacts was undertaken for planning purposes and to determine what traffic controls or other mitigations may be needed to reduce potential impacts, if any are identified.

### **What does the project consist of?**

For the purposes of this study, the total project build-out scenario was evaluated, which consists of 300,000 square feet of Hospital (approximately 262 beds) and 120,000 square feet of medical office space for building sizes totaling 420,000 square feet. The project site is located in the southeast quadrant of the Longley Lane/Airway Drive/Double R Blvd intersection in Reno, NV.

### **How much traffic will the project generate?**

The entire project is estimated to generate 7,804 Daily trips, 641 AM peak hour trips, and 809 PM peak hour trips.

### **Are there any traffic impacts?**

With addition of the project traffic, all study intersections would operate at acceptable levels of service (LOS "D" or better) under the 10 Year Horizon Plus Project conditions except for movements from Reno Corporate Drive at the Double R Boulevard/Reno Corporate Drive/Project Access intersection. This location will have poor, but overall manageable, operating conditions on the minor side-street approach with or without the proposed project.

The project creates a need for a new traffic signal system at the Longley Lane/Innovation Drive intersection, which will also benefit safety of traffic movements from the recently approved Longley/Airway Industrial project which will connect to Longley Lane opposite Innovation Drive.

The project will need to construct a second (dual) northbound left-turn lane at the Longley Lane/Airway Drive intersection and modify the signal to manage the future queue lengths.

### **Are any improvements recommended?**

The following list presents the proposed improvements associated with the project, to be implemented by the developer. The recommended lane configurations, access management strategies, and traffic controls for each of the study intersections are graphically illustrated on **Figure 10**.

- Construct a second (dual) northbound left-turn lane at the Longley Lane/Airway Drive intersection and modify the existing traffic signal accordingly. The pocket lengths should be 230 feet each.
- Construct a traffic signal at the Longley Lane/Innovation Drive intersection and stripe a westbound left turn pocket 150 feet in length on Innovation Drive.
- Construct a southbound left-turn lane (180 foot taper plus 250 foot right-turn pocket) on Longley Lane at the hospital entrance driveway. Left-out movements will be prohibited from the Longley Lane project driveway.
- Construct a northbound right-turn deceleration lane on Longley Lane at the hospital entrance driveway (180 foot taper plus 250 foot right turn pocket).
- Construct a channelizing island on the project exit, opposite Reno Corporate Drive, to prohibit outbound left-turn and through movements from the project at this location. The northbound left-turn in movement from Double R Blvd will remain as it is today. Reno Corporate Drive movements will not be modified in any way at this time.
- Install crosswalk markings across the project driveway opposite Reno Corporate Drive.
- With Phase 2 or 3 of the project, construct a northbound left-turn lane on Double R Blvd to Innovation Drive, if desired by the developer. This turn lane is not absolutely necessary, but would be advantageous in overall traffic circulation and improving safety and level of service conditions at the Double R/Reno Corporate Drive/project access intersection. This improvement is not needed with the first phase of the project.
- Construct sidewalk per City of Reno standards along the entire length of the project frontage on Innovation Drive. Construct sidewalk connections from the street frontages and any bus stop location(s) to the primary building access points.
- Coordinate with the Regional Transportation Commission (RTC RIDE) to plan and reserve adequate space for a public transit stop with bench/shelter on the project frontage.
- Provide on-site bicycle parking in accordance with City of Reno standards.
- Pay the standard Regional Road Impact Fees in the amount of approximately \$2,543,000 which will mitigate the project's minor effects throughout the regional roadway network.

### **LIST OF FIGURES**

1. Study Area
2. Site Plan
3. Background Lane Configurations and Controls
4. Background Traffic Volumes
5. Background Plus Project Lane Configurations and Controls
6. Project Trips
7. Background Plus Project Traffic Volumes
8. 10 Year Horizon Background Traffic Volumes
9. 10 Year Horizon Background Plus Project Traffic Volumes
10. Proposed Lane Configurations and Controls

### **LIST OF APPENDICES**

- A. Background Conditions LOS Calculations
- B. Background Plus Project Conditions LOS Calculations
- C. 10 Year Horizon Background Conditions LOS Calculations
- D. 10 Year Horizon Background Plus Project Conditions LOS Calculations
- E. Peak Hour Signal Warrant Analysis Sheet

## INTRODUCTION

This report presents the findings of a Transportation Impact Study completed to assess the potential transportation related impacts on the local roadway network associated with development of the Northern Nevada Sierra Medical Center project. This Transportation Impact Study has been prepared to describe existing traffic conditions, quantify traffic volumes generated by the proposed project, identify potential impacts on all modes of travel, document findings, and make recommendations to mitigate impacts, if any are found. The total project buildout includes 300,000 square feet of a full service hospital with approximately 262 beds and 120,000 square feet of medical offices space for a total building area of 420,000 square feet.

### *Study Area and Evaluated Scenarios*

The project is located in the southeast quadrant of the Airway Drive / Longley Lane intersection in Reno, NV. The project location and study intersections are shown in **Figure 1** and the preliminary site plan is provided in **Figure 2**. The following intersections were analyzed:

- Longley Lane / Airway Drive / Double R Blvd
- Double R Boulevard/ Reno Corporate Drive/Project Access
- Longley Lane / Innovation Drive
- Double R Boulevard/Innovation Drive
- Innovation Drive/Project Driveway #1
- Innovation Drive/Project Driveway #2
- Innovation Drive/Project Driveway #3
- Longley Lane/Project Driveway #4

This study includes analysis of both the weekday AM and PM peak hours as these are the periods of time in which peak traffic conditions are anticipated to occur. The evaluated development scenarios are:

- Background Conditions (including the recently approved Longley/Airway Industrial project on the west side of Longley Lane opposite this project site)
- Background Plus Project Conditions
- 10 Year Horizon (No Project)
- 10 Year Horizon Plus Project Conditions

**Analysis Methodology**

Level of service (LOS) is a term commonly used by transportation practitioners to measure and describe the operational characteristics of intersections, roadway segments, and other facilities. This term equates seconds of average delay per vehicle at intersections to letter grades “A” through “F” with “A” representing optimum conditions and “F” representing breakdown or over capacity flows.

The LOS for a Two-Way STOP Control (TWSC) intersection is defined by the worst movement delay (overall approach for single lanes and worst turning movement on multilane approaches). Level of Service for signalized intersections, roundabouts, and All-Way Stop Controlled (AWSC) intersections is reported for the overall intersection.

The complete methodology is established in the Highway Capacity Manual (HCM), 2010, published by the Transportation Research Board. **Table 1** presents the delay thresholds for each level of service grade at un-signalized and signalized intersections.

Level of service calculations were performed for the study intersections using the Vistro 5.0 software package with analysis and results reported in accordance with the 2010 HCM methodology.

**Table 1: Level of Service Definition for Intersections**

Level of Service	Brief Description	Un-signalized Intersections (average delay/vehicle in seconds)	Signalized Intersections (average delay/vehicle in seconds)
A	Free flow conditions.	< 10	< 10
B	Stable conditions with some affect from other vehicles.	10 to 15	10 to 20
C	Stable conditions with significant affect from other vehicles.	15 to 25	20 to 35
D	High density traffic conditions still with stable flow.	25 to 35	35 to 55
E	At or near capacity flows.	35 to 50	55 to 80
F	Over capacity conditions.	> 50	> 80

Source: Highway Capacity Manual (2010), Chapters 18, 19, and 20

### Level of Service Policy

The 2040 Regional Transportation Plan (2040 RTP) establishes level of service criteria for regional roadway facilities in Washoe County, the City of Reno, and City of Sparks. The current Level of Service policy is:

- “All regional roadway facilities projected to carry less than 27,000 ADT at the latest RTP horizon – LOS D or better.”
- “All regional roadway facilities projected to carry 27,000 ADT or more at the latest RTP horizon – LOS E or better.”
- “All intersections shall be designed to provide a level of service consistent with maintaining the policy level of service of the intersecting roadways”.

According to the most recent (2016) data from NDOT’s Traffic Records Information Access (TRINA) database, all roadways in the study area currently operate under 27,000 ADT. In addition, the study roadways are expected to operate under 27,000 ADT in the horizon years according to the 2040 RTP demand model forecasts. Hence, the 2040 RTP stated level of service threshold specific to this study area is LOS “D” for all study intersections. Where intersections are already experiencing level of service beyond the thresholds, conditions should not be exacerbated. In practice, this has often been interpreted as not increasing average delay per vehicle by more than 5 seconds for signalized and stop controlled intersections.

## **EXISTING TRANSPORTATION FACILITIES**

### ***Roadway Facilities***

A brief description of the key roadways in the study area is provided below.

*Longley Lane* is a four-lane and six-lane north-south arterial roadway in the project area. There are four lanes fronting the project site. It is classified as a “Moderate Access Control Arterial” in the 2040 RTP. The posted speed limit is 50 miles per hour (mph) within the project area.

*Airway Drive*, in the project vicinity, is a four to six-lane east-west roadway with two to three travel lanes in each direction. It is classified as a “Moderate Access Control Arterial” in the 2040 RTP. The posted speed limit is 35 mph within the project area.

*Double R Boulevard* is a four to six-lane east-west roadway with two to three travel lanes in each direction. It is classified as a “Moderate Access Control Arterial” in the 2040 RTP. The posted speed limit is 35 mph within the project area.

*Innovation Drive* is a two-lane east-west roadway with one travel lane in each direction. The posted speed limit is 25 mph within the project area. Innovation Drive functions as a Collector for the existing industrial and commercial land uses located south of the project site.

### ***Pedestrian and Bicycle Facilities***

Sidewalks are present on both sides of Double R Boulevard and along the project frontage on Longley Lane and on the south side of Innovation Drive. Sidewalks do not currently exist along the project frontage on Innovation Drive. Class II Bike lanes exist on all study roadways except Innovation Drive and Reno Corporate Drive, which are low speed and rideable roadways.

### ***Transit Service***

There are currently no RTC public transit routes that operate immediately in the project area. The nearest route is Route 64 on McCarran Boulevard. The applicant has reached out to the RTC RIDE transit coordinators to discuss transit service opportunities for the project. Transit service is ultimately the decision of the transit agency based on user demand, proximity of other routes, and available transit funding to make route and service revisions.

## **BACKGROUND CONDITIONS**

### ***Traffic Volumes***

Background traffic volumes were determined by collecting new turning movement counts during the AM and PM peak periods at the study intersections on an average mid-week day in February 2018 and adding projected trips from the recently approved, but not yet constructed, Longley/Airway Industrial project (located west side of Longley Lane opposite the project site). That project is roughly 270,000 sqft of industrial/flex building space anticipated to generate about 120 peak hour trips. The Longley/Airway Industrial project will be responsible for constructing a northbound left-turn lane at the Longley Lane/Innovation Drive intersection, which is anticipated to occur prior to any off-site improvements by this project. The background condition lane configurations and intersection controls are shown in **Figure 3** and the background condition peak hour intersection traffic volumes are shown on **Figure 4**, attached.

### ***Level of Service Analysis***

Level of service calculations were performed using the background condition traffic volumes, lane configurations, and traffic controls. The results are presented in **Table 2** and the calculation sheets are provided in **Appendix A**, attached.

**Table 2: Background Conditions Level of Service Summary**

Intersection	Intersection Control	AM Peak		PM Peak	
		LOS	Delay <sup>1</sup>	LOS	Delay <sup>1</sup>
Longley Lane / Airway Drive / Double R	Signalized	C	25.6	C	34.1
Double R Boulevard/ Reno Corporate Drive	Side Street STOP	Major Street Movements - LOS A			
<i>Westbound Approach</i>		F	>120	F	>120
<i>Southbound Left</i>		B	11.8	C	16.2
Longley Lane / Innovation Drive	Side Street STOP				
<i>Eastbound Approach</i>		B	14.5	C	18.8
<i>Northbound Left</i>		A	9.5	A	9.4
<i>Westbound Approach</i>		C	20.7	B	12.6
<i>Southbound Left</i>		A	9.3	A	9.0
Double R Boulevard/Innovation Drive	Side Street STOP				
<i>Eastbound Right</i>		C	15.6	B	13.4
Innovation Drive/Project Driveway #1	Side Street STOP				
<i>Northbound Approach</i>		A	8.7	A	8.6
<i>Westbound Left</i>		A	7.3	A	7.3
Innovation Drive/Project Driveway #2	Side Street STOP				
<i>Northbound Approach</i>		A	8.6	A	8.6
<i>Westbound Left</i>		A	7.3	A	7.3
Innovation Drive/Project Driveway #3	Side Street STOP				
<i>Northbound Approach</i>		A	8.5	A	8.5
<i>Westbound Left</i>		A	7.3	A	7.3
Longley Lane/ Project Driveway #4	Side Street STOP				
<i>Eastbound Right</i>		B	11.1	B	11.2

Notes: 1. Delay is reported in seconds per vehicle for overall intersection for signalized intersections, and for the worst movement/approach for unsignalized (side street stop controlled) intersections.

Source: Traffic Works, 2018

As shown in **Table 2**, all the study intersections currently operate at acceptable levels of service during both the AM and PM peak hours, except for the Double R Boulevard/Reno Corporate Drive side-street stop-controlled movement (specifically left turns from Reno Corporate Drive).

It should be noted that traffic volumes at the Longley/Airway and Double R/Reno Corporate Drive intersections are expected to decrease upon opening of the SouthEast Connector in mid-2018.

The reported LOS "F" movement at the Double R Boulevard/Reno Corporate Drive intersection is for the minor stop-controlled side-street approach (driven by the left-turn movement). LOS "E or F" for a minor side-street approach to a major arterial, as commonly exists throughout urban and suburban areas, and is a manageable situation that does not typically justify a traffic signal, roundabout, All-Way Stop Control, or other major revisions that would disrupt traffic flow on the major arterial. Delay on a minor side-street approach does not necessarily present an unacceptable condition, or justify mitigation, as the alternative in most cases would be worse for overall traffic flow. In practice, if the left-turn movement becomes too difficult, drivers will use alternate travel routes and this is generally a better/safer result. LOS "F" at the Double R Boulevard/Reno Corporate Drive intersection exists today and will remain with or without the project as this location is not appropriate for a traffic new signal.

We considered whether or not any movements from the Reno Corporate Drive approach should be modified concurrently with the project and determined that access restrictions are not advisable at this time for two reasons. First, Reno Corporate Drive is the only location where left-turns can be made from the Reno Corporate Center to travel south on either Longley Lane or Double R Boulevard. Restricting left-out movements from Reno Corporate Drive would adversely impact circulation and access for the entire Reno Corporate Center. Second, traffic volumes on Double R Boulevard are expected to decrease in mid to late 2018 following completion and opening of the SouthEast Connector arterial. Traffic is expected to shift away from Double R Boulevard, Longley Lane (north of Double R), and South McCarran Boulevard (east of Longley Lane) onto the SouthEast Connector. With decreased traffic volumes, movements from Reno Corporate Drive would be easier than they are today. It is our opinion that changes should not be considered at Reno Corporate Drive until the new traffic patterns and operations (post SouthEast connector opening) are observed.

## **PROJECT CONDITIONS**

### ***Project Description***

The project location is shown in **Figure 1** and the site plan is provided in **Figure 2**. The proposed project will likely be built in three phases. Phase I of the project includes 250,000 square feet of hospital with 172 beds and a 60,000 square foot Medical Office building; Phase II would include 60,000 square feet of additional Medical Office; and Phase III of the project would include a 50,000 square foot second hospital bed tower with 90 beds. The total project buildout consists of 300,000 square feet of a full service hospital with approximately 262 beds and 120,000 square feet of medical office space for a total building area of 420,000 square feet.

**Trip Generation**

Trip generation rates for the proposed project were obtained from the *Trip Generation Manual, 9th Edition*, published by the Institute of Transportation Engineers. **Table 3** provides the Daily, AM Peak Hour, and PM Peak Hour trip generation calculations for the proposed project.

**Table 3: Trip Generation Estimates**

Land Use (#)	Size		Daily			A.M. Peak			P.M. Peak		
	S.F	Beds	Total	Entry	Exit	Total	Entry	Exit	Total	Entry	Exit
<b>PHASE I</b>											
Hospital (610)	250,000	172	2,226	1,113	1,113	227	164	63	244	81	163
Medical Offices (720)	60,000	-	2,168	1,084	1,084	143	113	30	214	60	154
<b>PHASE II</b>											
Medical Offices (720)	60,000		2,168	1,084	1,084	143	113	30	214	60	154
<b>PHASE III</b>											
Hospital (610)	50,000	90	1,242	621	621	128	92	36	136	45	91
<b>Total</b>	<b>420,000</b>	<b>262</b>	<b>7,804</b>	<b>3,902</b>	<b>3,902</b>	<b>641</b>	<b>482</b>	<b>159</b>	<b>809</b>	<b>247</b>	<b>562</b>

Source: Trip Generation Manual, 9<sup>th</sup> Edition

As shown in **Table 3**, applying the ITE Trip Generation Manual trip rates, the proposed project buildout is anticipated to generate 7,804 total Daily trips, 641 total AM peak hour trips, and 809 total PM peak hour trips.

**Trip Distribution and Assignment**

Traffic generated by the total project was distributed to the road network based on the location of the project, major activity centers, and local roadway connections. The following trip distribution percentages were used for distributing the project traffic:

- 25% travelling to/from the west via Airway Drive
- 25% travelling to/from the north via Longley Lane
- 20% travelling to/from the east via Double R Boulevard
- 30% traveling to/from the south via Longley Lane

Project generated trips were assigned to the adjacent roadway system based on the distribution outlined above and the proposed driveway configurations. Background Plus Project lane configurations are shown on **Figure 5** and the project trip assignment is shown on **Figure 6**, attached.

### **Vehicular Access/Driveway Review**

Five access points are proposed for this development, three located on Innovation Drive, one on Longley Lane, and one existing location on Double R Boulevard, as shown on **Figure 2**.

Each project driveway on Innovation Drive is located directly across from an existing driveway and all are proposed to have all single-lane approaches with full movements and minor-street STOP control. The spacing of the project driveways and their offsets from the curb returns on both ends of Innovation Drive are in compliance with City of Reno Driveway Geometric Standards for a Commercial Collector street.

The project driveway on Longley Lane between Airway Drive and Innovation Drive is proposed as a minor-street STOP controlled driveway with restricted access of right-in, right-out, and southbound left-turn in movements due to its proximity to the Longley Lane/Airway Drive intersection. The driveway is proposed approximately 625 feet south of the Longley Lane/Airway Drive signalized intersection and is compliant with the 2040 RTP Access Spacing Standards for left-turn access from major streets, which is a minimum of 500 feet for Moderate Access Control (MAC) arterials. A northbound right-turn deceleration lane (180 foot taper plus 250 foot right turn pocket) should be constructed with this driveway. The southbound left-turn lane should also be constructed with 180 feet of taper and 250 feet of left-turn pocket.

The existing project access on Double R Boulevard opposite Reno Corporate Drive is also proposed as a minor-street STOP controlled driveway with restricted access of right-in, right-out, and northbound left-turn in movements. Although a full movement intersection today, it is recommended that the left-turn and through outbound movements from the project driveway be prohibited due to limited sight lines, heavy traffic volumes, safety concerns, and proximity to the Longley Lane/Double R Boulevard intersection.

With Phase 2 or 3, the project may wish to construct a northbound left-turn lane on Double R Blvd to Innovation Drive. This turn lane is not absolutely necessary, but would be advantageous in overall traffic circulation and improving safety and level of service conditions at the Double R/Reno Corporate Drive/project access intersection. This improvement is not needed with the first phase of the project but may be beneficial with the added traffic of future phases.

All project access designs should meet the American Association of State Highway and Transportation (AASHTO) sight distance requirements, which generally appears feasible. All the signing and striping at the proposed access intersections should be in accordance with the Manual on Uniform Traffic Control Devices (MUTCD) guidelines.

### **Pedestrian & Bicycle Access Review**

Sidewalks are present on both sides of Double R Boulevard, along the project frontage on Longley Lane, and on the south side of Innovation Drive. Sidewalks do not exist along the project frontage on Innovation Drive. Class II Bike lanes exist on all study roadways except Innovation Drive and Reno Corporate Drive, which are both low speed roadways conducive to bicycle travel.

Following are recommendations for bicycle, pedestrian, and transit facilities to connect the project with the surrounding transportation network:

- Install crosswalk markings at the project driveway opposite Reno Corporate Drive.
- Construct sidewalk per City of Reno standards along the entire length of the project frontage on Innovation Drive.
- Construct sidewalk connections from the street frontages and any bus stop location(s) to the primary building access points.
- Coordinate with the Regional Transportation Commission (RTC RIDE) to plan and reserve adequate space for a public transit stop with bench/shelter on the project frontage.
- Provide on-site bicycle parking in accordance with City of Reno standards.

## **BACKGROUND PLUS PROJECT CONDITIONS**

### ***Traffic Volumes***

Background Plus Project traffic volumes were developed by adding the project generated trips (**Figure 6**) to the background traffic volumes (**Figure 4**) and are shown on **Figure 7**, attached. The Background Plus Project condition Peak Hour Factors (PHF) and analysis parameters were assumed to remain the same as exist in the background conditions.

### ***Intersection Level of Service Analysis***

**Table 4** presents the level of service analysis summary for the “Background Plus Project” scenario. Detailed calculation sheets are provided in **Appendix B**, attached.

**Table 4: Background Plus Project Conditions Level of Service Summary**

Intersection	Intersection Control	AM Peak		PM Peak	
		LOS	Delay <sup>1</sup>	LOS	Delay <sup>1</sup>
Longley Lane / Airway Drive	Signalized	C	29.8	D	40.8
Double R Boulevard/ Reno Corporate Drive	Side Street STOP	Major Street Movements - LOS A			
<i>Eastbound Right</i>		C	15.5	B	14.7
<i>Northbound Left</i>		C	16.3	B	12.0
<i>Westbound Approach</i>		F	>120	F	>120
<i>Southbound Left</i>		B	11.9	C	16.3
Longley Lane / Innovation Drive	Side Street STOP				
<i>Eastbound Approach</i>		C	17.4	C	23.6
<i>Northbound Left</i>		A	9.5	A	9.4
<i>Westbound Approach</i>		F	>120	F	>120
<i>Southbound Left</i>		B	10.6	A	9.5
Double R Boulevard/Innovation Drive	Side Street STOP				
<i>Eastbound Right</i>		C	16.8	C	15.8
Innovation Drive/Project Driveway #1	Side Street STOP				
Northbound Approach		A	9.6	B	10.7
Westbound Left		A	7.6	A	7.7
Southbound Approach		A	8.8	B	10.3
Eastbound Left		A	7.4	A	7.4
Innovation Drive/Project Driveway #2	Side Street STOP				
Northbound Approach		A	9.2	B	10.4
Westbound Left		A	7.5	A	7.5
Southbound Approach		A	9.2	B	10.3
Eastbound Left		A	7.3	A	7.3
Innovation Drive/Project Driveway #3	Side Street STOP				
Northbound Approach		A	8.8	A	9.1
Westbound Left		A	7.3	A	7.3
Southbound Approach		A	8.8	A	8.9
Eastbound Left		A	7.3	A	7.4
Longley Lane/Project Driveway #4	Side Street STOP				
<i>Eastbound Right</i>		B	11.5	B	11.3
<i>Westbound Right</i>		B	11.3	B	13.7
<i>Southbound Left</i>		A	9.9	B	10.1

Notes: 1. Delay is reported in seconds per vehicle for overall intersection for signalized intersections, and for the worst movement/approach for unsignalized (side street stop controlled) intersections.

Source: Traffic Works, 2018

With the addition of project traffic, all study intersections are projected to operate at acceptable levels of service (LOS "D" or better) except for the Double R/Reno Corporate Drive and Longley/Innovation Drive intersections. Improvement options are discussed in the following sections for these locations.

**Double R Boulevard/Reno Corporate Drive/Project Access**

**Impact:** The addition of project traffic at this intersection would cause an increase in average delay of more than 5 seconds at a location already operating at unacceptable conditions (LOS “F” on the Reno Corporate Drive minor street approach).

**Mitigation Measures:** Various mitigations measures were investigated such as signal installation, All-Way STOP Control, and access restrictions at this location, however, no improvements were deemed appropriate to mitigate the existing conditions.

Traffic engineering practitioners recognize that LOS “E/F” conditions for the left-turn movement from a side-street, during the peak hours, do not necessarily indicate an intersection failure or the need for mitigation. Context of the volumes and intersection location are important in these cases. This condition (LOS “E/F” for a minor side-street left-turn movement) commonly exists throughout the urban area and is acceptable in most cases so long as a new proposed project does not directly add traffic volumes to the LOS “E/F” movement.

The project does not add traffic to the poor movement and this condition is deemed an existing and acceptable situation given the context. Drivers have the option of making a right-turn from Reno Corporate Drive and a U-turn at Longley Lane to return south on Double R Boulevard during congested time periods.

**Longley Lane/Innovation Drive**

**Impact:** The addition of project traffic at this intersection would cause the westbound approach to degrade to LOS“F” conditions during both AM and PM peak hours.

**Mitigation Measures:** The project’s impact would be fully mitigated by signaling the intersection and adding a left turn pocket on the westbound approach to minimize the queuing. With the implementation of these improvements, the intersection operations would be improved to LOS “B” or better during the AM and PM peak hours. The Peak Hour Volume signal warrant (Warrant 3) would be satisfied during the PM peak hour. The analysis sheet is provided in **Appendix E. Table 5** presents the level of service results for the “Background Plus Project” conditions with mitigation at the Longley Lane / Innovation Drive intersection.

**Table 5: Background Plus Project Conditions (Mitigated) Level of Service Summary**

Intersection	Intersection Control	AM Peak		PM Peak	
		LOS	Delay	LOS	Delay
Longley Lane / Innovation Drive	Signalized	B	10.7	A	8.2

## 10-YEAR HORIZON BACKGROUND CONDITIONS

Traffic volumes in the study area are anticipated to moderately increase in the future as regional development continues. Traffic growth rates were obtained from the Washoe County RTC’s travel demand model. The latest iteration of the travel demand model was used to determine future growth rates. The growth rates were then applied to the Background AM and PM peak hour traffic volumes to obtain future peak hour traffic volumes.

Growth rates were calculated based on the traffic volume increases at multiple points along Longley Lane north and south of the project, Double R Boulevard, and Airway Drive. The growth rate calculations are shown in **Table 6**.

**Table 6: Growth Rate Calculations**

Location	Double R	Double R	Double R	Airway Dr	Longley Ln	Longley Ln	Longley Ln
	SE/O Longley	S/O Reno Corporate	S/O Innovation	W/O Longley Ln	N/O Double R	S/O Double R	S/O Innovation
2016 NDOT AADT	16,000	16,000	16,000	9,800	19,000	12,000	12,000
2016 NDOT AWDT	18,113	18,113	18,113	11,094	21,509	13,585	13,585
2015 RTC AWDT	11,726	12,438	12,545	11,080	18,740	15,432	13,752
2040 RTC AWDT	13,395	14,485	14,661	15,940	18,432	17,655	15,578
Model Difference 2040-2015	1,669	2,047	2,116	4,860	-308	2,223	1,826
25 Years % Change	14%	16%	17%	44%	-2%	14%	13%
% per year	0.6%	0.7%	0.7%	1.8%	-0.1%	0.6%	0.5%
Adjusted %/year	1.0%	1.0%	1.0%	2.0%	0.0%	1.0%	1.0%
10 year growth factor	1.1	1.1	1.1	1.2	1.0	1.1	1.1
2035 Adjusted AADT	17,600	17,600	17,600	11,800	19,000	13,200	13,200
2035 Adjusted AWDT	19,924	19,924	19,924	13,358	21,509	14,943	14,943
25 Years Increase	1,669	2,047	2,116	4,860	-308	2,223	1,826
2040 Adjusted AADT	17,474	17,808	17,869	14,093	18,728	13,964	13,613
2040 Adjusted AWDT	19,782	20,160	20,229	15,954	21,201	15,808	15,411
2040 Adjusted AADT-2016 NDOT AADT	1,474	1,808	1,869	4,293	-272	1,964	1,613
% Change	9%	11%	12%	44%	-1%	16%	13%
% per year	0.4%	0.5%	0.5%	1.8%	-0.1%	0.7%	0.6%
10 year growth factor	1.0	1.0	1.0	1.2	1.0	1.1	1.1
Average Growth Factor	<b>1.1</b>						

The “10-Year Horizon Background” traffic volumes were calculated by applying an average growth factor of 1.1 (10% increase, or 1% per year) to the background peak hour turning movement volumes. The “10-Year Horizon Background” peak hour traffic volumes are shown in **Figure 8**.

**Intersection Level of Service Analysis**

**Table 7** presents the level of service analysis summary for the “10-Year Horizon Background” conditions assuming the Background intersection configurations. Detailed calculations are provided in **Appendix C**, attached.

**Table 7: 10-Year Horizon Background Intersection Level of Service Summary**

Intersection	Intersection Control	AM Peak		PM Peak	
		LOS	Delay <sup>1</sup>	LOS	Delay <sup>1</sup>
Longley Lane / Airway Drive / Double R	Signalized	C	29.3	D	42.1
Double R Boulevard/ Reno Corporate Drive	Side Street STOP	Major Street Movements - LOS A			
<i>Westbound Approach</i>		F	>120	F	>120
<i>Southbound Left</i>		B	12.8	C	18.4
Longley Lane / Innovation Drive	Side Street STOP				
<i>Eastbound Approach</i>		C	16.0	C	21.5
<i>Northbound Left</i>		A	9.9	A	9.7
<i>Westbound Approach</i>		C	24.3	B	13.4
<i>Southbound Left</i>	A	9.6	A	9.3	
Double R Boulevard/Innovation Drive	Side Street STOP				
<i>Eastbound Right</i>		C	16.9	B	14.2
Innovation Drive/Project Driveway #1	Side Street STOP				
<i>Northbound Approach</i>		A	8.7	A	8.6
<i>Westbound Left</i>	A	7.3	A	7.3	
Innovation Drive/Project Driveway #2	Side Street STOP				
<i>Northbound Approach</i>		A	8.6	A	8.6
<i>Westbound Left</i>	A	7.3	A	7.3	
Innovation Drive/Project Driveway #3	Side Street STOP				
<i>Northbound Approach</i>		A	8.5	A	8.5
<i>Westbound Left</i>	A	7.3	A	7.3	
Longley Lane/ Project Driveway #4	Side Street STOP				
<i>Eastbound Right</i>		B	11.5	B	11.5

Notes: 1. Delay is reported in seconds per vehicle for overall intersection for signalized intersections, and for the worst movement/approach for unsignalized (side street stop controlled) intersections.

Source: Traffic Works, 2018

As shown in **Table 7**, all the study intersections are anticipated to operate at acceptable levels of service during both the AM and PM peak hours, except for the Double R/Reno Corporate Drive intersection. As discussed in prior report sections, this condition is deemed a manageable condition in the overall context and no mitigations or modifications are recommended at this time.

#### ***Consideration of Peak Hour Signal Warrants***

Under 10-year Background Conditions, none of the currently unsignalized intersections in the study area would meet warrant criteria for signalization since the volumes are expected to be below the thresholds.

### **10-YEAR HORIZON PLUS PROJECT CONDITIONS**

#### ***Traffic Volumes***

The “10 year Horizon Plus Project” traffic volumes were developed by adding the project generated trips (**Figure 6**) to the “10-Year Horizon Background” traffic volumes (**Figure 8**) and are shown on **Figure 9**, attached.

#### ***Intersection Level of Service Analysis***

**Table 8** presents the level of service analysis summary for the “10-Year Horizon Plus Project” conditions. Detailed calculation sheets are provided in **Appendix D**, attached.

**Table 8: 10-Year Horizon Plus Project Intersection Level of Service Summary**

Intersection	Intersection Control	AM Peak		PM Peak	
		LOS	Delay <sup>1</sup>	LOS	Delay <sup>1</sup>
Longley Lane / Airway Drive	Signalized	C	33.8	D	52.0
Double R Boulevard/ Reno Corporate Drive	Side Street STOP	Major Street Movements - LOS A			
<i>Eastbound Right</i>		C	16.8	C	15.8
<i>Northbound Left</i>		C	18.3	B	12.8
<i>Westbound Approach</i>		F	>120	F	>120
<i>Southbound Left</i>		B	12.9	C	18.4
Longley Lane / Innovation Drive	Side Street STOP				
<i>Eastbound Approach</i>		C	19.9	D	28.2
<i>Northbound Left</i>		A	9.9	A	9.7
<i>Westbound Approach</i>		F	>120	F	>120
<i>Southbound Left</i>		B	11.1	A	9.8
Double R Boulevard/Innovation Drive	Side Street STOP				
<i>Eastbound Right</i>		C	18.3	C	17.0
Innovation Drive/Project Driveway #1	Side Street STOP				
Northbound Approach		A	9.8	B	10.9
Westbound Left		A	7.4	A	7.8
Southbound Approach		A	8.9	B	10.5
Eastbound Left		A	7.6	A	7.4
Innovation Drive/Project Driveway #2	Side Street STOP				
Northbound Approach		A	9.4	B	10.4
Westbound Left		A	7.5	A	7.5
Southbound Approach		A	9.3	B	10.4
Eastbound Left		A	7.4	A	7.3
Innovation Drive/Project Driveway #3	Side Street STOP				
Northbound Approach		A	8.8	A	9.2
Westbound Left		A	7.3	A	7.3
Southbound Approach		A	8.8	A	8.9
Eastbound Left		A	7.3	A	7.4
Longley Lane/Project Driveway #4	Side Street STOP				
<i>Eastbound Right</i>		B	11.9	B	11.7
<i>Westbound Right</i>		B	11.7	B	14.4
<i>Southbound Left</i>		B	10.2	B	10.5

Notes: 1. Delay is reported in seconds per vehicle for overall intersection for signalized intersections, and for the worst movement/approach for unsignalized (side street stop controlled) intersections.

2. Mitigated LOS and delay.

Source: Traffic Works, 2018

As shown in **Table 8**, with the addition of project traffic, all study intersections are projected to operate at acceptable levels of service (LOS "D" or better) except for the Double R/Reno Corporate Drive and Longley/Innovation Drive intersections.

Listed below are the probable intersection impacts and recommended mitigation measures necessary to either maintain the City’s level of service standard (LOS D or better) or offset the project’s incremental impact where LOS D is already exceeded such that conditions are not exacerbated.

**Double R Boulevard/Reno Corporate Drive/Project Access**

**Impact:** The addition of project traffic at this intersection would cause an increase in average delay by 5 or more seconds and worsen operating conditions for the Reno Corporate Drive stop-controlled approach already operating at LOS “F” in both AM and PM peak hours.

**Mitigation Measures:** As stated in the Background Plus Project mitigation section, the project does not add traffic to the poor movement and this condition is deemed an existing and manageable situation given the context. Drivers have the option of making a right-turn from Reno Corporate Drive and a U-turn at Longley Lane to return south on Double R Boulevard during congested time periods.

**Longley Lane/Innovation Drive**

**Impact:** The addition of project traffic at this intersection would cause the westbound approach to degrade to LOS “F” conditions during both AM and PM peak hours in the 10 year horizon.

**Mitigation Measures:** The project’s impacts would be fully mitigated by signaling the intersection and adding a left turn pocket on the westbound approach to minimize the queuing. With signalization, the intersection operations would be improved to LOS “B” during both the AM and PM peak hours. The Peak Hour Volume signal warrant (Warrant 3) would be satisfied during the PM peak hour. The analysis sheet is provided in **Appendix E**.

**Table 9** presents the level of service analysis summary under “10-Year Horizon Plus Project” conditions with mitigations at the Longley Lane / Innovation Drive intersection.

**Table 9: Background Plus Project Conditions (Mitigated) Level of Service Summary**

Intersection	Intersection Control	AM Peak		PM Peak	
		LOS	Delay <sup>1</sup>	LOS	Delay <sup>1</sup>
Longley Lane / Innovation Drive	Signalized	B	11.8	B	17.2

**Queuing Analysis**

Vehicle queuing lengths were evaluated for build-out of the project plus 10-year horizon conditions at locations where the project is expected to add significant turning movements and turn pocket lengths could potentially be exceeded. **Table 10** summarizes the recommended turn pocket lengths at the evaluated locations. All other turn pockets in the study area are anticipated to be sufficient at their current lengths.

**Table 10: 10-Year Horizon Plus Project Turn Pocket Lengths**

Intersection	Movement	Existing Turn Pocket Length (ft)	95th Percentile Queue AM (ft)	95th Percentile Queue PM (ft)	Recommended Turn Pocket Length (ft)
Longley Ln / Double R Blvd	NB Left	180	199	460	Dual Lefts @ 230
Double R Blvd / Reno Corporate Dr	NB Left	225	29	9	Existing
Longley Ln / Project Dwy 4	SB Left	--	11	6	250
Longley Ln / Innovation Dr	SB Left	200	140	38	Existing
	WB Left	--	41	116	150

The project should construct a second (dual) northbound left-turn lane at the Longley Lane/Airway Drive intersection and modify the existing traffic signal accordingly. The pocket lengths should be 230 feet each.

With dual northbound left-turn lanes, operations for the 10 year horizon plus project scenario at the Longley Lane/Airway Drive intersection would improve to LOS "C" with 33.0 seconds of average delay during the AM peak hour and LOS "D" with 48.3 seconds of average delay during the PM peak hour.

## CONCLUSIONS & RECOMMENDATIONS

The following is a list of our key findings and recommendations:

**Proposed Project:** The proposed Northern Nevada Sierra Medical Center includes 300,000 square feet of full service hospital, with approximately 262 beds, and 120,000 square feet of medical office space for a total building area of 420,000 square feet.

**Project Trips:** The proposed project buildout is anticipated to generate 7,804 total Daily trips, 641 total AM peak hour trips, and 809 total PM peak hour trips.

**Project Access:** Five private access points are proposed for this development, three located on Innovation Drive, one on Longley Lane, and one on Double R Boulevard.

All three access points on Innovation Drive are proposed as full access intersections allowing for all possible movements with minor-street STOP control. The driveways would all have single-lane approaches and departures to/from Innovation Drive.

The project driveway on Longley Lane between Airway Drive and Innovation Drive is proposed as a minor-street STOP controlled driveway with right-in, right-out, and southbound left-turn inbound movements only. A northbound right-turn deceleration lane (180 foot taper plus 250 foot right turn pocket) should be constructed with this driveway. The southbound left-turn lane at this location should also be constructed with 180 feet of taper and 250 feet of left-turn pocket.

The project access on Double R Boulevard, opposite Reno Corporate Drive, is proposed to have only right-in, right-out, and northbound left-turn inbound movements. A channelizing island will be constructed to prohibit the outbound left-turn and through movements.

**Summary of Impacts:** With addition of the project traffic, all study intersections would operate at acceptable levels of service (LOS "D" or better) under the 10 Year Horizon Plus Project conditions except for outbound movements from Reno Corporate Drive at the Double R Boulevard/Reno Corporate Drive/Project Access intersection. This location will have poor, but overall manageable operating conditions on the minor side-street approach with or without the proposed project.

The project creates a need for a new traffic signal system at the Longley Lane/Innovation Drive intersection, which will also benefit the safety of traffic movements from the recently approved Longley/Airway Industrial project which will connect to Longley Lane opposite Innovation Drive.

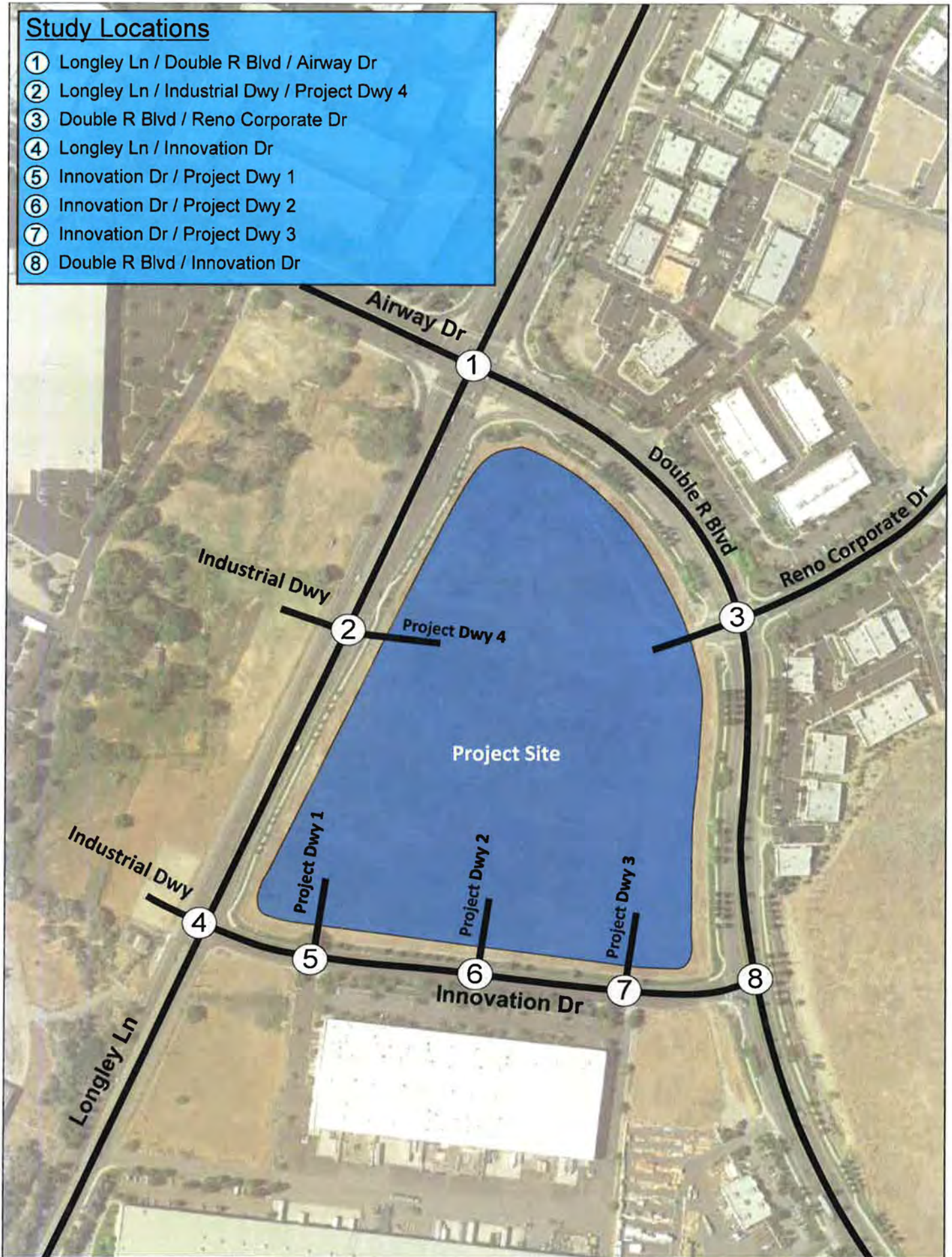
The project will need to construct a second (dual) northbound left-turn lane at the Longley Lane/Airway Drive intersection and modify the signal to manage the future queue lengths.

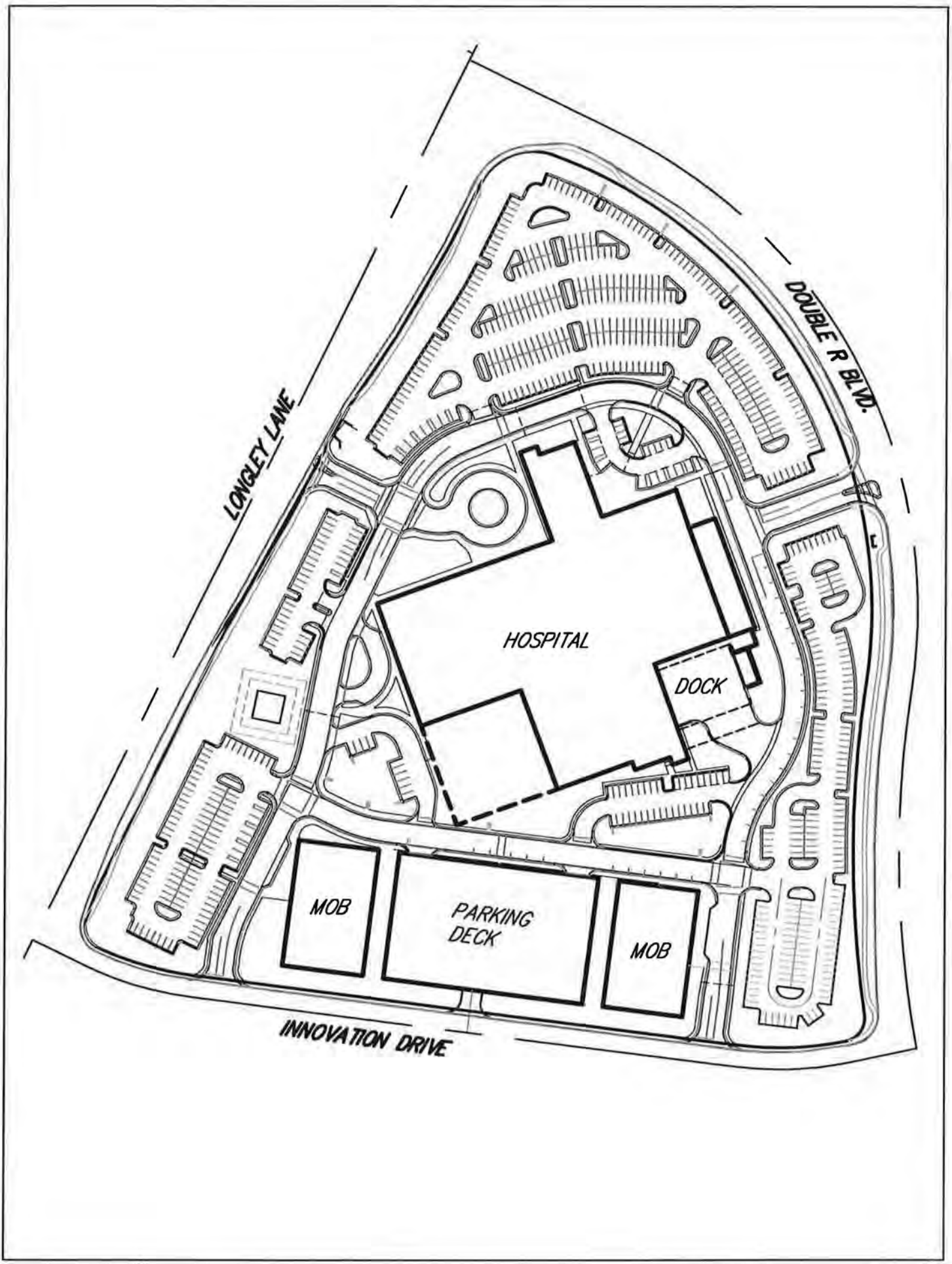
**Summary of Proposed Improvements:** The following are proposed improvements for the project, to be implemented by the developer. The recommended lane configurations, access management strategies, and traffic controls for each of the study intersections are graphically illustrated on **Figure 10**.

- Construct a second (dual) northbound left-turn lane at the Longley Lane/Airway Drive intersection and modify the existing traffic signal accordingly. The pocket lengths should be 230 feet each.
- Construct a traffic signal at the Longley Lane/Innovation Drive intersection and stripe a westbound left turn pocket 150 feet in length on Innovation Drive.
- Construct a southbound left-turn lane (180 foot taper plus 250 foot right-turn pocket) on Longley Lane at the hospital entrance driveway. Left-out movements will be prohibited from the Longley Lane project driveway.
- Construct a northbound right-turn deceleration lane on Longley Lane at the hospital entrance driveway (180 foot taper plus 250 foot right turn pocket).
- Construct a channelizing island on the project exit, opposite Reno Corporate Drive, to prohibit outbound left-turn and through movements from the project at this location. The northbound left-turn in movement from Double R Blvd will remain as it is today. Reno Corporate Drive movements will not be modified in any way at this time.
- Install crosswalk markings across the project driveway opposite Reno Corporate Drive.
- With Phase 2 or 3 of the project, construct a northbound left-turn lane on Double R Blvd to Innovation Drive, if desired by the developer. This turn lane is not absolutely necessary, but would be advantageous in overall traffic circulation and in improving safety and level of service conditions at the Double R/Reno Corporate Drive/project access intersection. This improvement is not needed with the first phase of the project.
- Construct sidewalk per City of Reno standards along the entire length of the project frontage on Innovation Drive. Construct sidewalk connections from the street frontages and any bus stop location(s) to the primary building access points.
- Coordinate with the Regional Transportation Commission (RTC RIDE) to plan and reserve adequate space for a public transit stop with bench/shelter on the project frontage.
- Provide on-site bicycle parking in accordance with City of Reno standards.
- Pay the standard Regional Road Impact Fees in the amount of approximately \$2,543,000 which will mitigate the project's minor effects throughout the regional roadway network.

## Study Locations

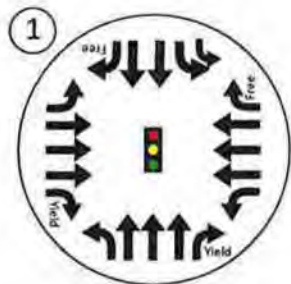
- ① Longley Ln / Double R Blvd / Airway Dr
- ② Longley Ln / Industrial Dwy / Project Dwy 4
- ③ Double R Blvd / Reno Corporate Dr
- ④ Longley Ln / Innovation Dr
- ⑤ Innovation Dr / Project Dwy 1
- ⑥ Innovation Dr / Project Dwy 2
- ⑦ Innovation Dr / Project Dwy 3
- ⑧ Double R Blvd / Innovation Dr



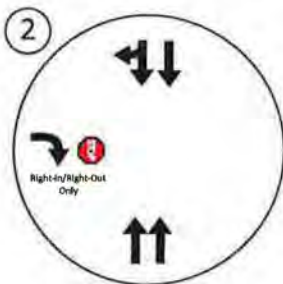




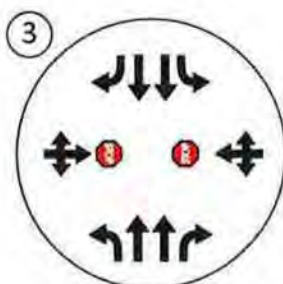
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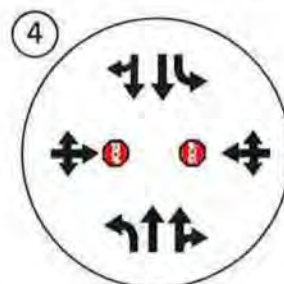
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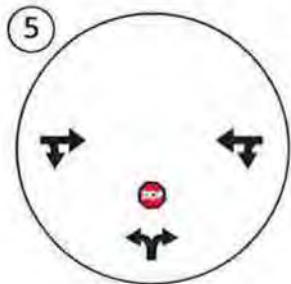
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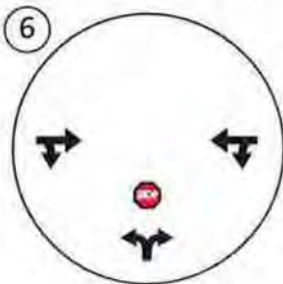
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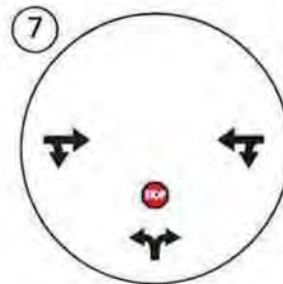
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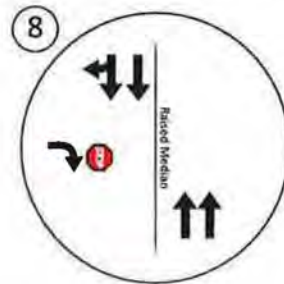
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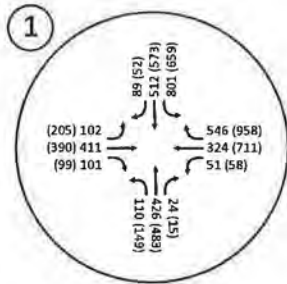


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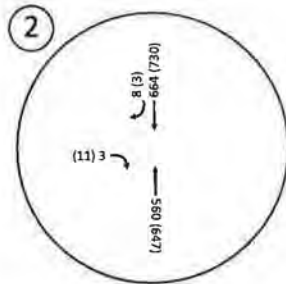




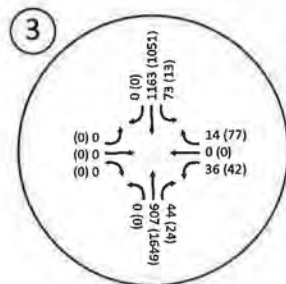
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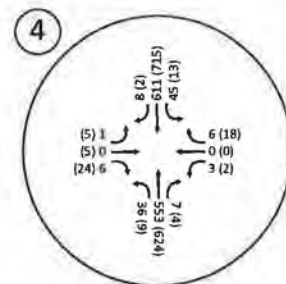
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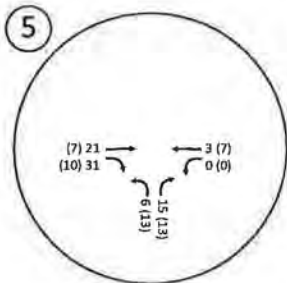
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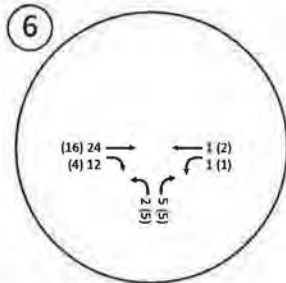
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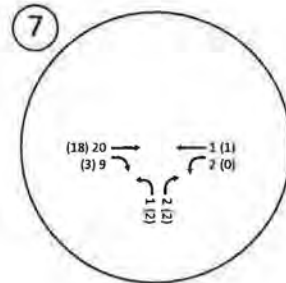
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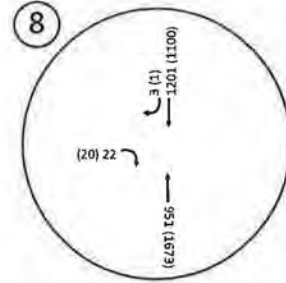
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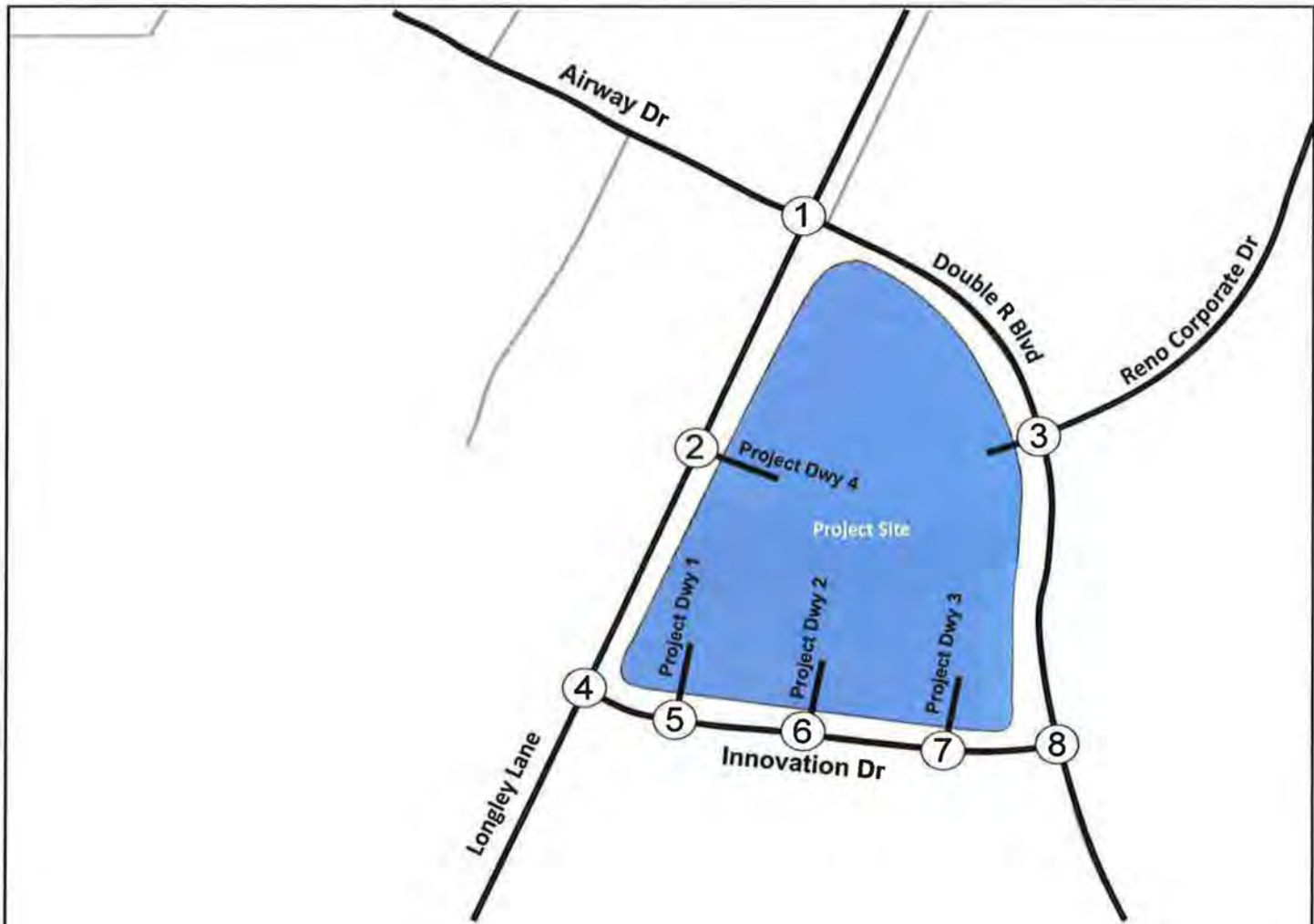


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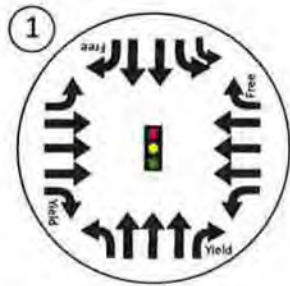


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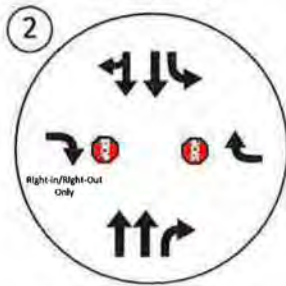




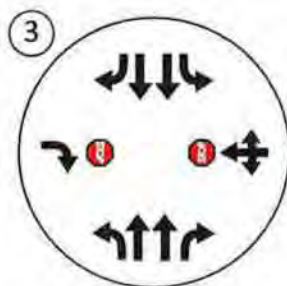
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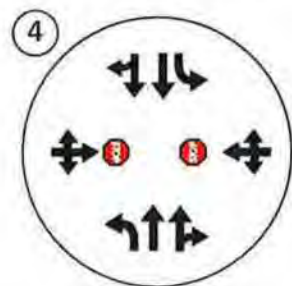
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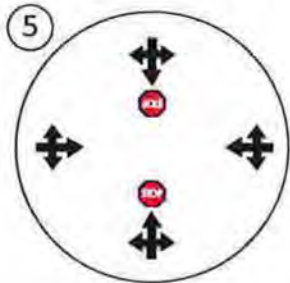
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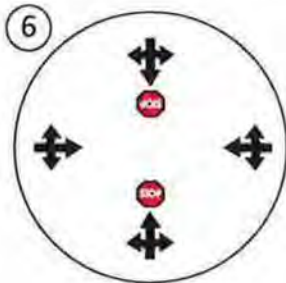
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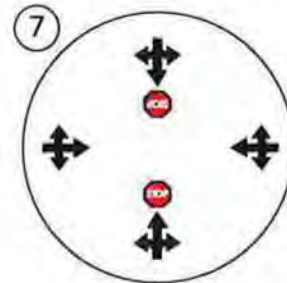
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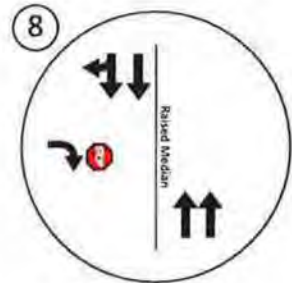
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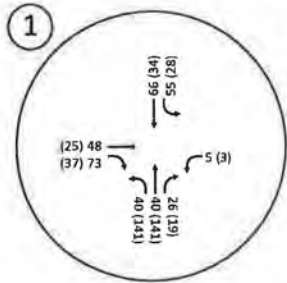


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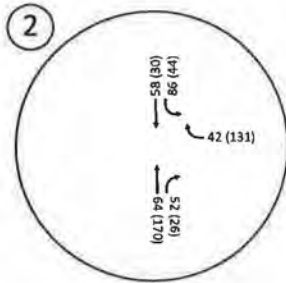




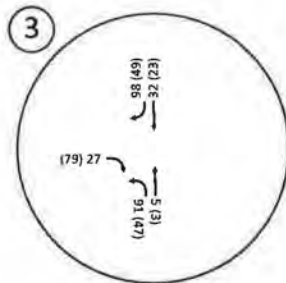
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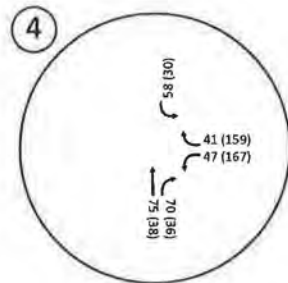
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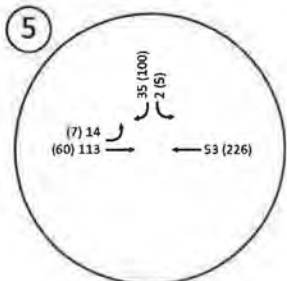
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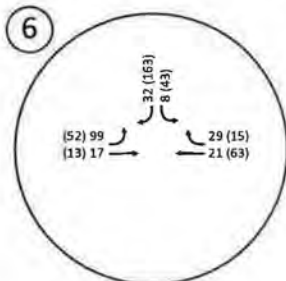
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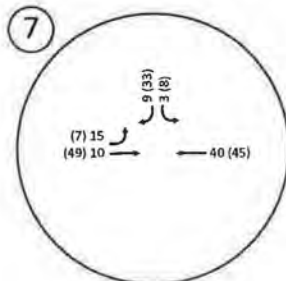
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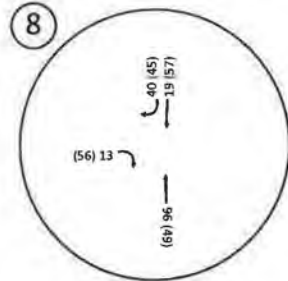
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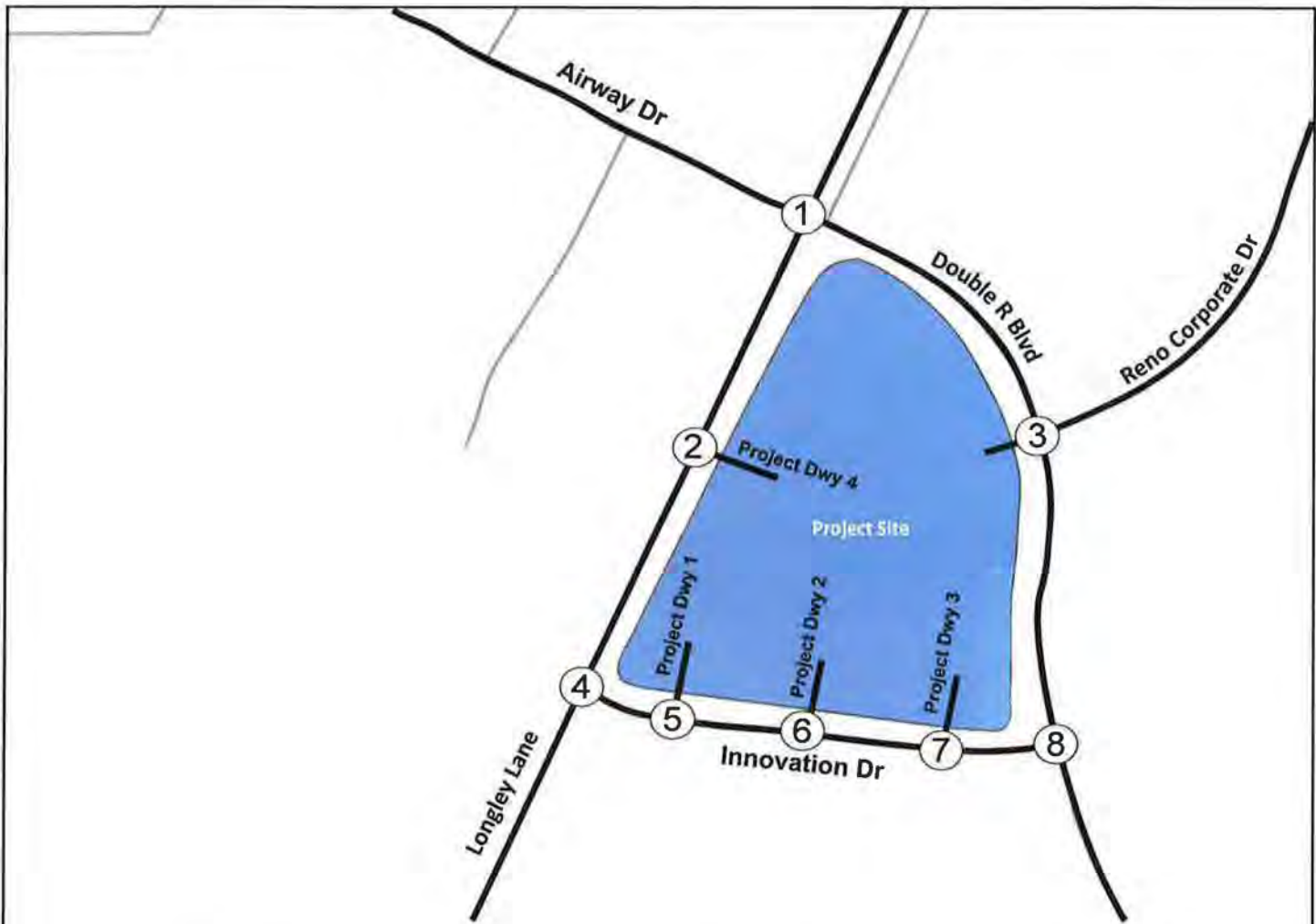
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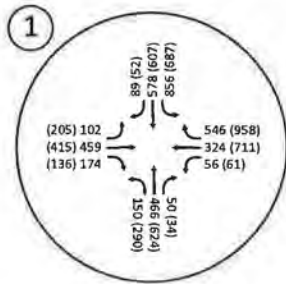
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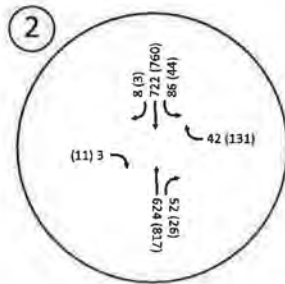
AM Peak Hour Volume (PM Peak Hour Volume)



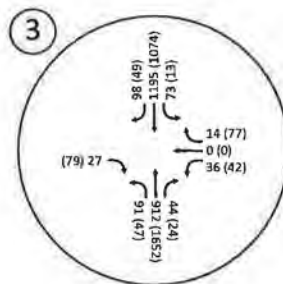
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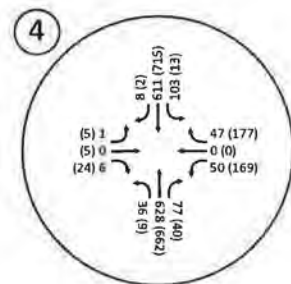
Longley Ln / Project Dwy 4 / Industrial Dwy



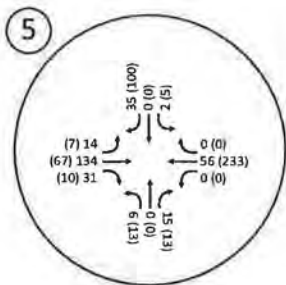
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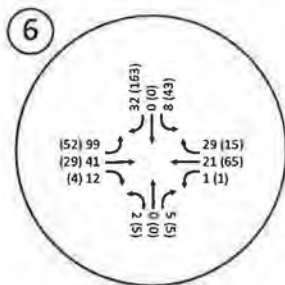
Longley Ln / Innovation Dr



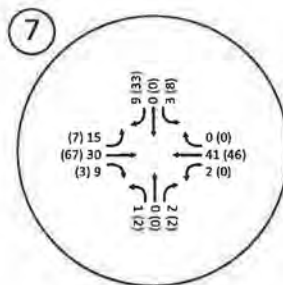
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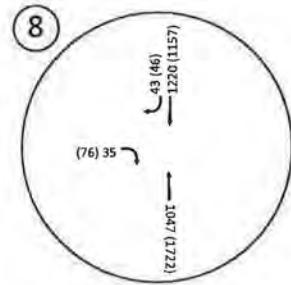
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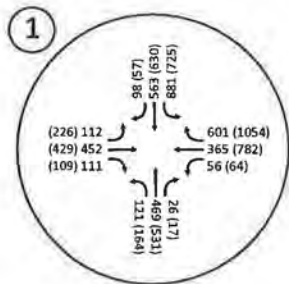
Double R Blvd / Innovation Dr



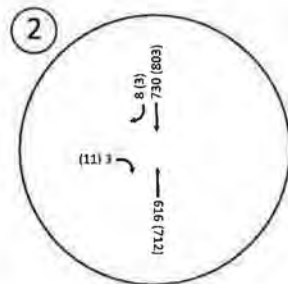
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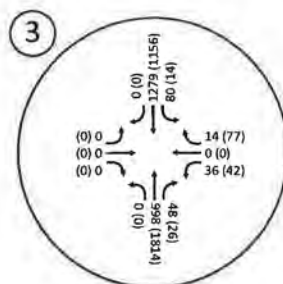
Longley Ln / Airway Dr



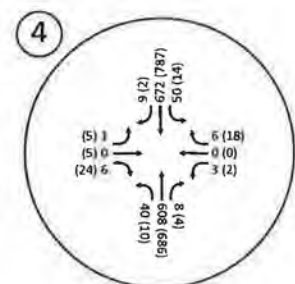
Longley Ln / Industrial Dwy



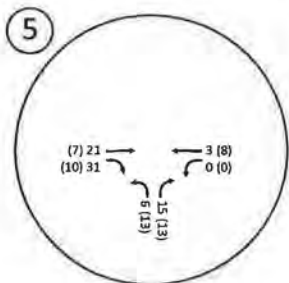
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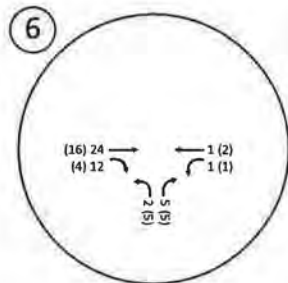
Longley Ln / Innovation Dr



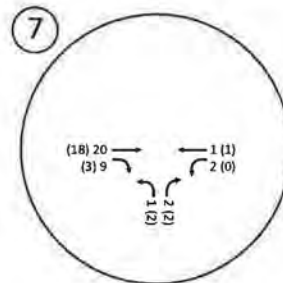
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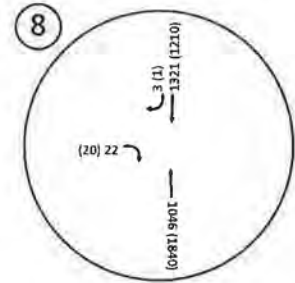
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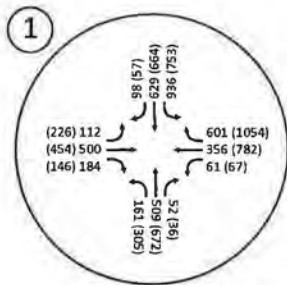


Double R Blvd / Innovation Dr

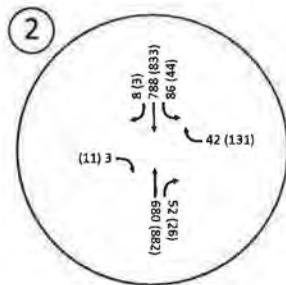




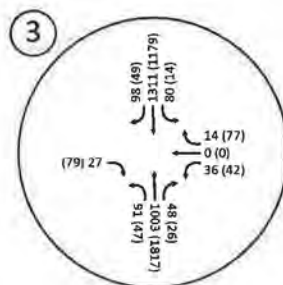
Longley Ln / Airway Dr



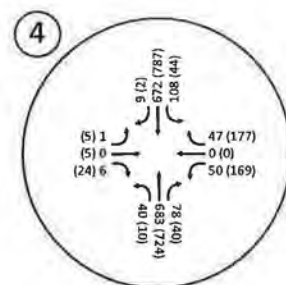
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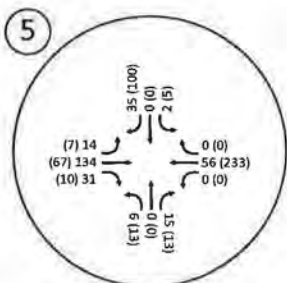
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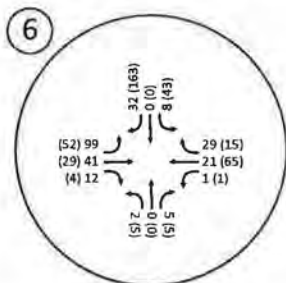
Longley Ln / Innovation Dr



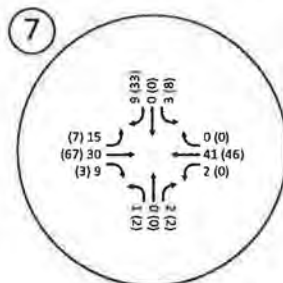
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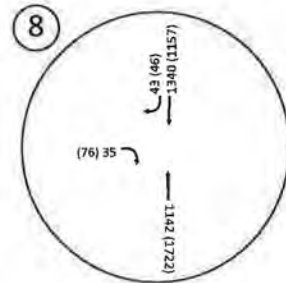
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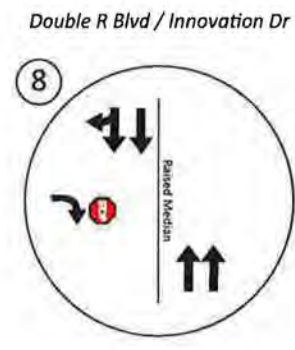
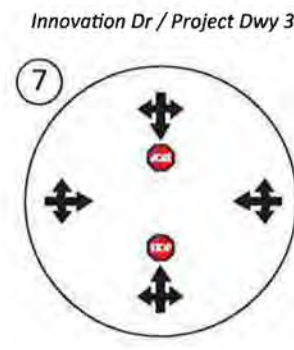
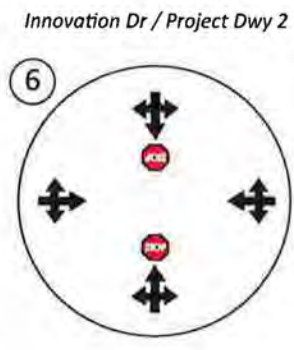
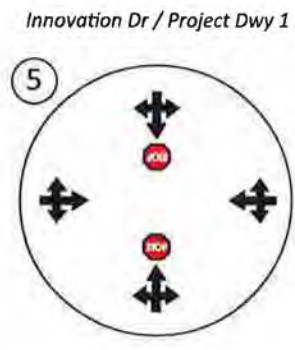
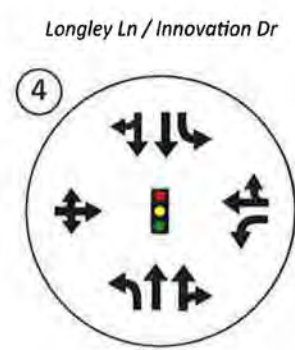
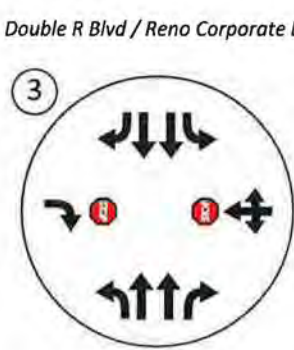
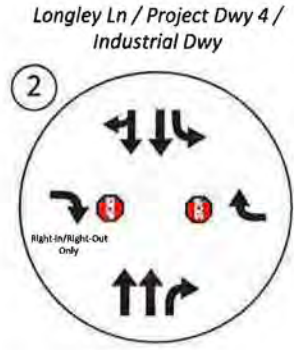
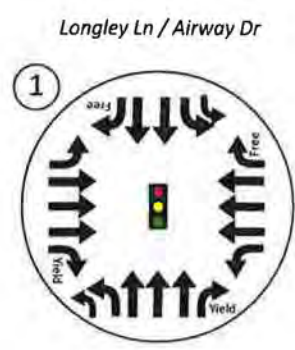
Innovation / Project Dwy 3



Double R Blvd / Innovation Dr



AM Peak Hour Volume (PM Peak Hour Volume)



**Appendix A**  
**Background Conditions LOS Calculations**

**Intersection Level Of Service Report**  
**Intersection 1: Longley Ln / Airway Dr**

Control Type:	Signalized	Delay (sec / veh):	25.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.577

**Intersection Setup**

Name	Longley Ln			Longley Ln			Double R Blvd			Airway Dr		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	2	0	1	1	0	1	1	0	1
Pocket Length [ft]	180.00	110.00	140.00	300.00	100.00	140.00	250.00	100.00	250.00	250.00	100.00	250.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Longley Ln			Longley Ln			Double R Blvd			Airway Dr		
Base Volume Input [veh/h]	110	426	24	801	512	89	51	324	546	102	411	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	110	426	24	801	512	89	51	324	546	102	411	101
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	33	127	7	238	152	0	15	96	0	30	122	30
Total Analysis Volume [veh/h]	131	507	29	954	610	0	61	386	0	121	489	120
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]												
Local Bus Stopping Rate [/h]			0			0			0			0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	
Cycle Length [s]	145
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead			Lead			Lead			Lead		
Minimum Green [s]	6	8	0	6	8	0	6	6	0	6	6	0
Maximum Green [s]	36	35	0	35	35	0	25	30	0	25	30	0
Amber [s]	3.5	4.7	0.0	3.5	4.7	0.0	3.5	4.0	0.0	3.5	4.0	0.0
All red [s]	0.5	1.0	0.0	1.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	40	41	0	40	41	0	29	35	0	29	35	0
Vehicle Extension [s]	2.5	2.0	0.0	3.0	2.0	0.0	2.5	2.5	0.0	2.5	2.5	0.0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	21	0	0	28	0	0	28	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.7	0.0	3.0	3.7	0.0	2.0	3.0	0.0	2.0	3.0	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	69	69	69	69	69	69	69	69	69	69	69	69
L, Total Lost Time per Cycle [s]	4.00	5.70	5.70	5.00	5.70	5.70	4.00	5.00	5.00	4.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.70	3.70	3.00	3.70	3.70	2.00	3.00	3.00	2.00	3.00	3.00
g_i, Effective Green Time [s]	7	10	10	25	29	29	4	8	8	7	11	11
g / C, Green / Cycle	0.10	0.15	0.15	0.36	0.41	0.41	0.06	0.12	0.12	0.10	0.16	0.16
(v / s)_i Volume / Saturation Flow Rate	0.08	0.11	0.02	0.31	0.19	0.00	0.04	0.08	0.00	0.08	0.11	0.08
s, saturation flow rate [veh/h]	1603	4584	1431	3113	3204	1431	1603	4584	1431	1603	4584	1431
c, Capacity [veh/h]	166	667	208	1107	1320	589	96	552	172	153	715	223
d1, Uniform Delay [s]	30.49	28.59	25.96	20.85	14.87	0.00	31.99	29.42	0.00	30.81	27.77	27.08
k, delay calibration	0.08	0.04	0.04	0.11	0.04	0.04	0.08	0.08	0.08	0.08	0.08	0.08
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.16	0.68	0.11	2.12	0.09	0.00	5.04	1.20	0.00	6.61	0.87	1.49
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.79	0.76	0.14	0.86	0.46	0.00	0.63	0.70	0.00	0.79	0.68	0.54
d, Delay for Lane Group [s/veh]	36.64	29.28	26.07	22.97	14.97	0.00	37.02	30.62	0.00	37.43	28.63	28.57
Lane Group LOS	D	C	C	C	B	A	D	C	A	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	2.34	2.63	0.41	6.90	3.21	0.00	1.10	2.04	0.00	2.19	2.50	1.85
50th-Percentile Queue Length [ft]	58.51	65.69	10.23	172.42	80.14	0.00	27.54	51.01	0.00	54.71	62.58	46.21
95th-Percentile Queue Length [veh]	4.21	4.73	0.74	11.20	5.77	0.00	1.98	3.67	0.00	3.94	4.51	3.33
95th-Percentile Queue Length [ft]	105.31	118.23	18.42	280.10	144.25	0.00	49.58	91.82	0.00	98.47	112.65	83.18

**Movement, Approach, & Intersection Results**

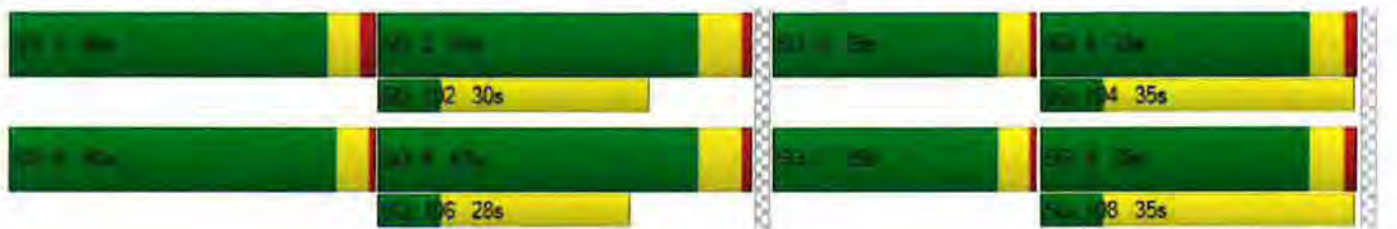
d_M, Delay for Movement [s/veh]	36.64	29.28	26.07	22.97	14.97	0.00	37.02	30.62	0.00	37.43	28.63	28.57
Movement LOS	D	C	C	C	B	A	D	C	A	D	C	C
d_A, Approach Delay [s/veh]	30.58			19.85			31.49			30.08		
Approach LOS	C			B			C			C		
d_I, Intersection Delay [s/veh]	25.67											
Intersection LOS	C											
Intersection V/C	0.577											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	61.92	61.92	61.92	61.92
I_p,int, Pedestrian LOS Score for Intersection	2.820	3.015	2.982	2.900
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	487	487	414	414
d_b, Bicycle Delay [s]	41.50	41.50	45.60	45.60
I_b,int, Bicycle LOS Score for Intersection	1.926	2.850	1.805	1.961
Bicycle LOS	A	C	A	A

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**

**Intersection 2: Double R Blvd/Reno Corporate Drive/Project Access**

Control Type:	Two-way stop	Delay (sec / veh):	468.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

**Intersection Setup**

Name	Double R Blvd											
Approach	Northbound			Southbound			Eastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1		1	1		1	0		0	0		0
Pocket Length [ft]	220.00		70.00	170.00		110.00						
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Double R Blvd											
Base Volume Input [veh/h]	0	907	44	73	1163	0	0	0	0	36	0	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	907	44	73	1163	0	0	0	0	36	0	14
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	270	13	22	346	0	0	0	0	11	0	4
Total Analysis Volume [veh/h]	0	1080	52	87	1385	0	0	0	0	43	0	17
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]				
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00			0.14			0.00	0.00	0.00	1.24	0.00	0.03
d_M, Delay for Movement [s/veh]	12.34			11.84			146.05	201.76	14.32	391.09	468.95	294.37
Movement LOS	B	A	A	B	A	A	F	F	B	F	F	F
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.49	0.00	0.00	0.00	0.00	0.00	5.63	5.63	5.63
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	12.32	0.00	0.00	0.00	0.00	0.00	140.76	140.76	140.76
d_A, Approach Delay [s/veh]	0.00			0.70			120.71			363.69		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	8.58											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 3: Longley Lane/Innovation Dr**

Control Type:	Two-way stop	Delay (sec / veh):	47.2
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

**Intersection Setup**

Name	Innovation Dr			Innovation Dr			Longley Ln			Longley Ln		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

**Volumes**

Name	Innovation Dr			Innovation Dr			Longley Ln			Longley Ln		
Base Volume Input [veh/h]	1	0	6	3	0	6	36	553	7	45	611	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	6	3	0	6	36	553	7	45	611	8
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	2	1	0	2	11	171	2	14	189	2
Total Analysis Volume [veh/h]	1	0	7	4	0	7	44	683	9	56	754	10
Pedestrian Volume [ped/h]	0			0								

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]				
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.01	0.04	0.00	0.01	0.05			0.06		
d_M, Delay for Movement [s/veh]	38.74	46.64	11.04	37.28	47.20	11.26	9.50			9.27		
Movement LOS	E	E	B	E	E	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.06	0.06	0.06	0.14	0.14	0.14	0.16	0.00	0.00	0.20	0.00	0.00
95th-Percentile Queue Length [ft]	1.58	1.58	1.58	3.59	3.59	3.59	4.11	0.00	0.00	4.97	0.00	0.00
d_A, Approach Delay [s/veh]	14.50			20.72			0.57			0.63		
Approach LOS	B			C			A			A		
d_I, Intersection Delay [s/veh]	0.81											
Intersection LOS	E											

**Intersection Level Of Service Report**  
**Intersection 4: Innovation Drive/Double R Blvd**

Control Type:	Two-way stop	Delay (sec / veh):	15.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.074

**Intersection Setup**

Name	Northbound		Southbound		Innovation Dr Eastbound	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration			+		└	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Southbound		Innovation Dr Eastbound	
Base Volume Input [veh/h]	951	1201	3		22	
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	951	1201	3		22	
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	286	362	1		7	
Total Analysis Volume [veh/h]	1146	1447	4		27	
Pedestrian Volume [ped/h]	0	0	0	0	0	0

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]			
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.07
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	15.58
Movement LOS		A	A	A	C
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.24
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	5.92
d_A, Approach Delay [s/veh]	0.00		0.00		15.58
Approach LOS	A		A		C
d_I, Intersection Delay [s/veh]					0.16
Intersection LOS					C

**Intersection Level Of Service Report**  
**Intersection 5: Innovation Dr/Project Dwy #1**

Control Type:	Two-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

**Intersection Setup**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Base Volume Input [veh/h]	6	15	21	31	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	15	21	31	0	3
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	6	9	0	1
Total Analysis Volume [veh/h]	7	18	25	37	0	4
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0		0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.02	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.83	8.60	0.00	0.00	7.34	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.08	0.08	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	1.91	1.91	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.66		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.38					
Intersection LOS	A					

**Intersection Level Of Service Report**  
**Intersection 6: Innovation Dr/Project Dwy #2**

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

**Intersection Setup**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Base Volume Input [veh/h]	2	5	24	12	1	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	5	24	12	1	1
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	7	4	0	0
Total Analysis Volume [veh/h]	2	6	29	15	1	1
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.73	8.50	0.00	0.00	7.30	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.02	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.59	0.59	0.00	0.00	0.10	0.10
d_A, Approach Delay [s/veh]	8.56		0.00		3.65	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.40					
Intersection LOS	A					

**Intersection Level Of Service Report**  
**Intersection 7: Innovation Dr/Project Dwy #3**

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

**Intersection Setup**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	<b>T</b>		<b>T</b>		<b>T</b>	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Base Volume Input [veh/h]	1	2	20	9	2	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	2	20	9	2	1
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	6	3	1	0
Total Analysis Volume [veh/h]	1	2	24	11	2	1
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.69	8.45	7.29	7.29	7.29	7.29
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.01	0.01	0.01	0.01
95th-Percentile Queue Length [ft]	0.22	0.22	0.00	0.00	0.14	0.14
d_A, Approach Delay [s/veh]	8.53		0.00		4.86	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.98					
Intersection LOS	A					

**Intersection Level Of Service Report**  
**Intersection 8: Longley Ln/Project Dwy #4**

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

**Intersection Setup**

Name	Longley Ln		Longley Ln			
Approach	Northeastbound		Southwestbound		Southeastbound	
Lane Configuration			+			
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Longley Ln		Longley Ln			
Base Volume Input [veh/h]	560	664	8			3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	560	664	8			3
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	171	202	2			1
Total Analysis Volume [veh/h]	683	810	10			3
Pedestrian Volume [ped/h]						0

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]			
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	11.12
Movement LOS		A	A	A	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.02
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.38
d_A, Approach Delay [s/veh]	0.00		0.00		11.12
Approach LOS	A		A		B
d_I, Intersection Delay [s/veh]	0.02				
Intersection LOS	B				

**Intersection Level Of Service Report**  
**Intersection 1: Longley Ln / Airway Dr**

Control Type: Signalized  
Analysis Method: HCM 6th Edition  
Analysis Period: 15 minutes

Delay (sec / veh): 34.1  
Level Of Service: C  
Volume to Capacity (v/c): 0.667

**Intersection Setup**

Name	Longley Ln			Longley Ln			Double R Blvd			Airway Dr		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1		1	2		1	1		1	1		1
Pocket Length [ft]	180.00		140.00	300.00		140.00	250.00		250.00	250.00		250.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Longley Ln			Longley Ln			Double R Blvd			Airway Dr		
Base Volume Input [veh/h]	149	483	15	659	573	52	58	711	958	205	390	99
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]			0			0			0			0
Total Hourly Volume [veh/h]	149	483	15	659	573	52	58	711	958	205	390	99
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	41	134	4	183	159	0	16	198	0	57	108	28
Total Analysis Volume [veh/h]	166	537	17	732	637	0	64	790	0	228	433	110
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]						0						
Local Bus Stopping Rate [/h]			0			0			0			0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	
Cycle Length [s]	145
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2		1	6		3	8		7	4	
Auxiliary Signal Groups												
Lead / Lag	Lead			Lead			Lead			Lead		
Minimum Green [s]	6	8		6	8		6	6		6	6	
Maximum Green [s]	36	35		35	35		25	30		25	30	
Amber [s]	3.5	4.7		3.5	4.7		3.5	4.0		3.5	4.0	
All red [s]	0.5	1.0		1.5	1.0		0.5	1.0		0.5	1.0	
Split [s]	40	41		40	41		29	35		29	35	
Vehicle Extension [s]	2.5	2.0		3.0	2.0		2.5	2.5		2.5	2.5	
Walk [s]		7			7			7			7	
Pedestrian Clearance [s]		23			21			28			28	
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
I2, Clearance Lost Time [s]	2.0	3.7		3.0	3.7		2.0	3.0		2.0	3.0	
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]												
Detector Length [ft]												
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	91	91	91	91	91	91	91	91	91	91	91	91
L, Total Lost Time per Cycle [s]	4.00	5.70	5.70	5.00	5.70	5.70	4.00	5.00	5.00	4.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]												
l2, Clearance Lost Time [s]	2.00	3.70	3.70	3.00	3.70	3.70	2.00	3.00	3.00	2.00	3.00	3.00
g_i, Effective Green Time [s]	11	13	13	24	27	27	5	19	19	15	29	29
g / C, Green / Cycle	0.12	0.14	0.14	0.27	0.30	0.30	0.05	0.21	0.21	0.16	0.32	0.32
(v / s)_i Volume / Saturation Flow Rate	0.10	0.12	0.01	0.24	0.20	0.00	0.04	0.17	0.00	0.14	0.09	0.08
s, saturation flow rate [veh/h]	1603	4584	1431	3113	3204	1431	1603	4584	1431	1603	4584	1431
c, Capacity [veh/h]	200	660	206	840	961	429	85	941	294	263	1450	452
d1, Uniform Delay [s]	38.80	37.68	33.67	31.64	27.76	0.00	42.39	34.64	0.00	36.98	23.44	22.99
k, delay calibration	0.08	0.04	0.04	0.11	0.04	0.04	0.08	0.08	0.08	0.08	0.08	0.08
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.53	0.95	0.06	2.99	0.29	0.00	9.48	1.57	0.00	6.46	0.08	0.20
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.83	0.81	0.08	0.87	0.66	0.00	0.75	0.84	0.00	0.87	0.30	0.24
d, Delay for Lane Group [s/veh]	45.32	38.63	33.73	34.63	28.05	0.00	51.87	36.21	0.00	43.44	23.52	23.20
Lane Group LOS	D	D	C	C	C	A	D	D	A	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	3.91	3.84	0.32	7.76	5.89	0.00	1.62	5.58	0.00	5.30	2.30	1.73
50th-Percentile Queue Length [ft]	97.68	96.03	8.12	194.03	147.37	0.00	40.50	139.56	0.00	132.43	57.38	43.33
95th-Percentile Queue Length [veh]	7.03	6.91	0.58	12.33	9.88	0.00	2.92	9.46	0.00	9.07	4.13	3.12
95th-Percentile Queue Length [ft]	175.82	172.85	14.61	308.26	246.91	0.00	72.90	236.43	0.00	226.80	103.28	77.99

**Movement, Approach, & Intersection Results**

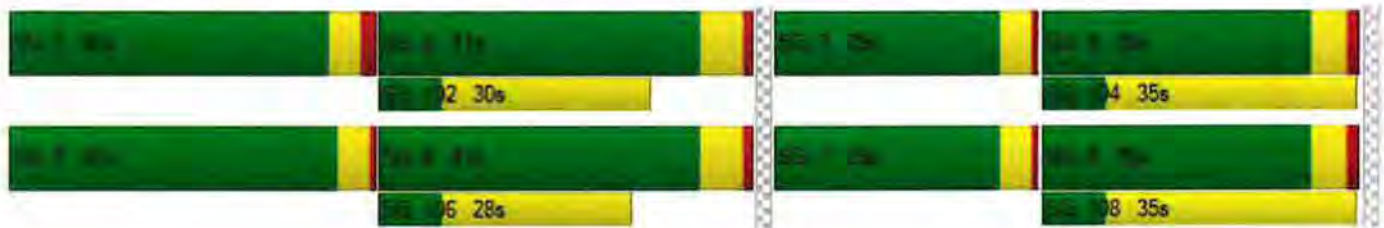
d_M, Delay for Movement [s/veh]	45.32	38.63	33.73	34.63	28.05	0.00	51.87	36.21	0.00	43.44	23.52	23.20
Movement LOS	D	D	C	C	C	A	D	D	A	D	C	C
d_A, Approach Delay [s/veh]	40.06			31.57			37.38			29.37		
Approach LOS	D			C			D			C		
d_I, Intersection Delay [s/veh]	34.09											
Intersection LOS	C											
Intersection V/C	0.667											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	61.92	61.92	61.92	61.92
I_p,int, Pedestrian LOS Score for Intersection	2.830	3.008	2.996	2.959
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	487	487	414	414
d_b, Bicycle Delay [s]	41.50	41.50	45.60	45.60
I_b,int, Bicycle LOS Score for Intersection	1.956	2.689	2.029	1.984
Bicycle LOS	A	B	B	A

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**

**Intersection 2: Double R Blvd/Reno Corporate Drive/Project Access**

Control Type:	Two-way stop	Delay (sec / veh):	1,198.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

**Intersection Setup**

Name	Northbound			Double R Blvd			Eastbound			Southwestbound		
Approach	Northbound			Southbound			Eastbound			Southwestbound		
Lane Configuration	↵↵↵			↵↵↵			↵			↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1		1	1		1	0		0	0		0
Pocket Length [ft]	220.00		70.00	170.00		110.00				100.00		70.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Northbound			Double R Blvd			Eastbound			Southwestbound		
Base Volume Input [veh/h]	0	1649	24	13	1051	0	0	0	0	42	0	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1649	24	13	1051	0	0	0	0	42	0	77
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	443	6	3	283	0	0	0	0	11	0	21
Total Analysis Volume [veh/h]	0	1773	26	14	1130	0	0	0	0	45	0	83
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]				
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	2.55	0.00	0.29
d_M, Delay for Movement [s/veh]	10.92	0.00	0.00	16.22	0.00	0.00	167.49	272.89	12.73	1145.22	1198.86	954.00
Movement LOS	B	A	A	C	A	A	F	F	B	F	F	F
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.00	13.83	13.83	13.83
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	3.26	0.00	0.00	0.00	0.00	0.00	345.84	345.84	345.84
d_A, Approach Delay [s/veh]	0.00			0.20			151.04			1021.23		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	42.64											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 3: Longley Lane/Innovation Dr**

Control Type:	Two-way stop	Delay (sec / veh):	37.6
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.043

**Intersection Setup**

Name	Innovation Dr			Innovation Dr			Longley Ln			Longley Ln		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration	T			T			T T			T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0		0	0		0	1		0	1		0
Pocket Length [ft]							200.00			200.00		
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

**Volumes**

Name	Innovation Dr			Innovation Dr			Longley Ln			Longley Ln		
Base Volume Input [veh/h]	5	5	24	2	0	18	9	624	4	13	715	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	24	2	0	18	9	624	4	13	715	2
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	7	1	0	5	2	170	1	4	194	1
Total Analysis Volume [veh/h]	5	5	26	2	0	20	10	678	4	14	777	2
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]				
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.04	0.04	0.04	0.01	0.00	0.03	0.01	0.00	0.00	0.02	0.00	0.00
d_M, Delay for Movement [s/veh]	32.05	37.59	12.57	29.92	36.23	10.83	9.37	0.00	0.00	9.03	0.00	0.00
Movement LOS	D	E	B	D	E	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.41	0.41	0.41	0.14	0.14	0.14	0.04	0.00	0.00	0.05	0.00	0.00
95th-Percentile Queue Length [ft]	10.19	10.19	10.19	3.46	3.46	3.46	0.91	0.00	0.00	1.18	0.00	0.00
d_A, Approach Delay [s/veh]	18.75			12.57			0.14			0.16		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	0.76											
Intersection LOS	E											

**Intersection Level Of Service Report**  
**Intersection 4: Innovation Drive/Double R Blvd**

Control Type:	Two-way stop	Delay (sec / veh):	13.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.047

**Intersection Setup**

Name	Northbound		Southbound		Innovation Dr Eastbound	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration			T			
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Southbound		Innovation Dr Eastbound	
Base Volume Input [veh/h]	1673	1100	1		20	
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1673	1100	1		20	
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	445	293	0		5	
Total Analysis Volume [veh/h]	1780	1170	1		21	
Pedestrian Volume [ped/h]	0	0	0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]			
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.05
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	13.36
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.15
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00	3.65
d_A, Approach Delay [s/veh]	0.00		0.00		13.36	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]				0.09		
Intersection LOS				B		

**Intersection Level Of Service Report**  
**Intersection 5: Innovation Dr/Project Dwy #1**

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

**Intersection Setup**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Approach						
Lane Configuration	<b>T</b>		<b>T</b>		<b>T</b>	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Base Volume Input [veh/h]	13	13	7	10	0	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	13	7	10	0	7
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	4	2	3	0	2
Total Analysis Volume [veh/h]	14	14	8	11	0	8
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]	0		
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median	0		

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.72	8.47	7.25	7.25	7.25	7.25
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.08	0.08	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	2.10	2.10	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.59		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.38					
Intersection LOS	A					

**Intersection Level Of Service Report**  
**Intersection 6: Innovation Dr/Project Dwy #2**

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

**Intersection Setup**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	←		→		←	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	(100.00)	(100.00)		(100.00)	(100.00)	(100.00)
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Base Volume Input [veh/h]	5	5	16	4	1	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	16	4	1	2
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	4	1	0	1
Total Analysis Volume [veh/h]	6	6	18	4	1	2
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.01			0.00	
d_M, Delay for Movement [s/veh]	8.67	8.44			7.26	
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.04	0.04	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft]	0.89	0.89	0.00	0.00	0.14	0.14
d_A, Approach Delay [s/veh]	8.56		0.00		2.42	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.97					
Intersection LOS	A					

**Intersection Level Of Service Report**  
**Intersection 7: Innovation Dr/Project Dwy #3**

Control Type:	Two-way stop	Delay (sec / veh):	8.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

**Intersection Setup**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	<b>T</b>		<b>T</b>		<b>T</b>	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Base Volume Input [veh/h]	2	2	18	3	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	2	18	3	0	1
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	5	1	0	0
Total Analysis Volume [veh/h]	2	2	20	3	0	1
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00			0.00	
d_M, Delay for Movement [s/veh]	8.64	8.42			7.26	
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.29	0.29	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.53		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.22					
Intersection LOS	A					

**Intersection Level Of Service Report**  
**Intersection 8: Longley Ln/Project Dwy #4**

Control Type:	Two-way stop	Delay (sec / veh):	11.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.020

**Intersection Setup**

Name	Longley Ln		Longley Ln		Southeastbound	
Approach	Northeastbound		Southwestbound		Southeastbound	
Lane Configuration					└	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Longley Ln		Longley Ln		Southeastbound	
Base Volume Input [veh/h]	647	730	3			11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000		1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00			2.00
Growth Rate	1.00	1.00	1.00			1.00
In-Process Volume [veh/h]	0	0	0			0
Site-Generated Trips [veh/h]	0	0	0			0
Diverted Trips [veh/h]	0	0	0			0
Pass-by Trips [veh/h]	0	0	0			0
Existing Site Adjustment Volume [veh/h]	0	0	0			0
Other Volume [veh/h]	0	0	0			0
Total Hourly Volume [veh/h]	647	730	3			11
Peak Hour Factor	0.9100	0.9100	0.9100			0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000			1.0000
Total 15-Minute Volume [veh/h]	178	201	1			3
Total Analysis Volume [veh/h]	711	802	3			12
Pedestrian Volume [ped/h]						0

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]			
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.10	0.07	0.07	0.09	0.09	0.02
d_M, Delay for Movement [s/veh]	11.15	11.15	11.15	11.15	11.15	11.15
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.06
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00	1.54
d_A, Approach Delay [s/veh]	0.00		0.00		11.15	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]				0.09		
Intersection LOS				B		

**Appendix B**  
**Background Plus**  
**Project Conditions LOS Calculations**

**Intersection Level Of Service Report**  
**Intersection 1: Longley Ln / Airway Dr**

Control Type:	Signalized	Delay (sec / veh):	29.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.635

**Intersection Setup**

Name	Longley Ln			Longley Ln			Double R Blvd			Airway Dr		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration	⇌⇌⇌			⇌⇌⇌			⇌⇌⇌			⇌⇌⇌		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1		1	2		1	1		1	1		1
Pocket Length [ft]	180.00		140.00	300.00		140.00	250.00		250.00	250.00		250.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Longley Ln			Longley Ln			Double R Blvd			Airway Dr		
Base Volume Input [veh/h]	110	426	24	801	512	89	51	324	546	102	411	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	40	40	26	55	66	0	5	0	0	0	48	73
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]			0			0			0			0
Total Hourly Volume [veh/h]	150	466	50	856	578	89	56	324	546	102	459	174
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	45	139	15	255	172	0	17	96	0	30	137	52
Total Analysis Volume [veh/h]	179	555	60	1019	688	0	67	386	0	121	546	207
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]			0			0			0			0
Local Bus Stopping Rate [/h]			0			0			0			0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	
Cycle Length [s]	145
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2		1	6		3	8		7	4	
Auxiliary Signal Groups												
Lead / Lag	Lead			Lead			Lead			Lead		
Minimum Green [s]	6	8		6	8		6	6		6	6	
Maximum Green [s]	36	35		35	35		25	30		25	30	
Amber [s]	3.5	4.7		3.5	4.7		3.5	4.0		3.5	4.0	
All red [s]	0.5	1.0		1.5	1.0		0.5	1.0		0.5	1.0	
Split [s]	40	41		40	41		29	35		29	35	
Vehicle Extension [s]	2.5	2.0		3.0	2.0		2.5	2.5		2.5	2.5	
Walk [s]		7			7			7			7	
Pedestrian Clearance [s]		23			21			28			28	
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
I2, Clearance Lost Time [s]	2.0	3.7		3.0	3.7		2.0	3.0		2.0	3.0	
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	111		111	0.0		0.0	111		111	0.0	
Detector Length [ft]	0.0	111		111	0.0		0.0	111		111	0.0	
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	81	81	81	81	81	81	81	81	81	81	81	81
L, Total Lost Time per Cycle [s]	4.00	5.70	5.70	5.00	5.70	5.70	4.00	5.00	5.00	4.00	5.00	5.00
I1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I2, Clearance Lost Time [s]	2.00	3.70	3.70	3.00	3.70	3.70	2.00	3.00	3.00	2.00	3.00	3.00
g_i, Effective Green Time [s]	11	12	12	29	32	32	5	12	12	8	15	15
g / C, Green / Cycle	0.14	0.15	0.15	0.36	0.39	0.39	0.06	0.15	0.15	0.09	0.18	0.18
(v / s)_i Volume / Saturation Flow Rate	0.11	0.12	0.04	0.33	0.21	0.00	0.04	0.08	0.00	0.08	0.12	0.14
s, saturation flow rate [veh/h]	1603	4584	1431	3113	3204	1431	1603	4584	1431	1603	4584	1431
c, Capacity [veh/h]	217	696	217	1137	1263	564	93	666	208	152	834	260
d1, Uniform Delay [s]	34.10	33.16	30.42	24.28	18.94	0.00	37.53	32.33	0.00	35.92	30.78	31.71
k, delay calibration	0.08	0.04	0.04	0.11	0.04	0.04	0.08	0.08	0.08	0.08	0.08	0.08
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	5.85	0.81	0.25	2.80	0.14	0.00	7.60	0.60	0.00	6.96	0.65	4.13
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.83	0.80	0.28	0.90	0.54	0.00	0.72	0.58	0.00	0.80	0.65	0.80
d, Delay for Lane Group [s/veh]	39.95	33.96	30.67	27.07	19.08	0.00	45.12	32.93	0.00	42.88	31.44	35.83
Lane Group LOS	D	C	C	C	B	A	D	C	A	D	C	D
Critical Lane Group	No	Yes	No	Yes	No	No	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	3.68	3.45	1.03	9.06	4.72	0.00	1.47	2.33	0.00	2.58	3.25	4.05
50th-Percentile Queue Length [ft]	92.11	86.35	25.69	226.46	118.04	0.00	36.83	58.20	0.00	64.42	81.27	101.18
95th-Percentile Queue Length [veh]	6.63	6.22	1.85	13.99	8.29	0.00	2.65	4.19	0.00	4.64	5.85	7.28
95th-Percentile Queue Length [ft]	165.80	155.42	46.24	349.85	207.14	0.00	66.30	104.77	0.00	115.96	146.28	182.12

**Movement, Approach, & Intersection Results**

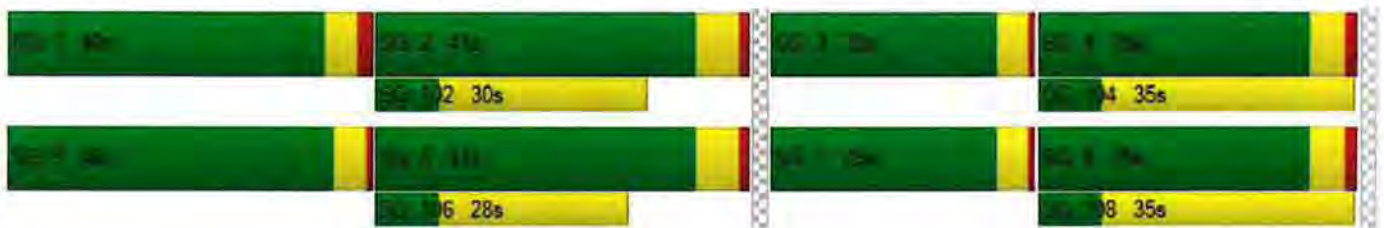
d_M, Delay for Movement [s/veh]	39.95	33.96	30.67	27.07	19.08	0.00	45.12	32.93	0.00	42.88	31.44	35.83
Movement LOS	D	C	C	C	B	A	D	C	A	D	C	D
d_A, Approach Delay [s/veh]	35.06			23.85			34.73			34.06		
Approach LOS	D			C			C			C		
d_I, Intersection Delay [s/veh]	29.80											
Intersection LOS	C											
Intersection V/C	0.635											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0		11.0		11.0		11.0	
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00		0.00		0.00		0.00	
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00		0.00		0.00		0.00	
d_p, Pedestrian Delay [s]	61.92		61.92		61.92		61.92	
I_p,int, Pedestrian LOS Score for Intersection	2.861		3.039		3.001		2.924	
Crosswalk LOS	C		C		C		C	
s_b, Saturation Flow Rate of the bicycle lane	2000		2000		2000		2000	
c_b, Capacity of the bicycle lane [bicycles/h]	487		487		414		414	
d_b, Bicycle Delay [s]	41.50		41.50		45.60		45.60	
I_b,int, Bicycle LOS Score for Intersection	1.996		2.968		1.809		2.040	
Bicycle LOS	A		C		A		B	

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**

**Intersection 2: Double R Blvd/Reno Corporate Drive/Project Access**

Control Type:	Two-way stop	Delay (sec / veh):	1,357.0
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

**Intersection Setup**

Name	Northbound			Double R Blvd Southbound			Eastbound			Southwestbound		
Approach	Northbound			Southbound			Eastbound			Southwestbound		
Lane Configuration	T T T			T T T			T			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00		12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1		1	1		1			0	0		0
Pocket Length [ft]	220.00		70.00	170.00		110.00						
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Northbound			Double R Blvd Southbound			Eastbound			Southwestbound		
Base Volume Input [veh/h]	0	907	44	73	1163	0			0	36	0	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00			2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0			0	0	0	0
Site-Generated Trips [veh/h]	91	5	0	0	32	98			27	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0			0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0			0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0			0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0			0	0	0	0
Total Hourly Volume [veh/h]	91	912	44	73	1195	98			27	36	0	14
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400			0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000			1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	271	13	22	356	29			8	11	0	4
Total Analysis Volume [veh/h]	108	1086	52	87	1423	117			32	43	0	17
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]				
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.25			0.14					0.09	2.57	0.00	0.04
d_M, Delay for Movement [s/veh]	16.25			11.89					15.49	1141.00	1356.96	933.33
Movement LOS	C	A	A	B	A	A			C	F	F	F
95th-Percentile Queue Length [veh]	0.99	0.00	0.00	0.50	0.00	0.00			0.28	7.59	7.59	7.59
95th-Percentile Queue Length [ft]	24.75	0.00	0.00	12.39	0.00	0.00			6.95	189.66	189.66	189.66
d_A, Approach Delay [s/veh]	1.41			0.64			15.49			1082.16		
Approach LOS	A			A			C			F		
d_I, Intersection Delay [s/veh]	23.01											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 3: Longley Lane/Innovation Dr**

Control Type:	Two-way stop	Delay (sec / veh):	209.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

**Intersection Setup**

Name	Innovation Dr			Innovation Dr			Longley Ln			Longley Ln		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration	T			T			1 1 1			1 1 1		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0		0	0		0	1		0	1		0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	200.00	100.00	200.00	200.00	200.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

**Volumes**

Name	Innovation Dr			Innovation Dr			Longley Ln			Longley Ln		
Base Volume Input [veh/h]	1	0	6	3	0	6	36	553	7	45	611	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	47	0	41	0	75	70	58	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	6	50	0	47	36	628	77	103	611	8
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	2	15	0	15	11	194	24	32	189	2
Total Analysis Volume [veh/h]	1	0	7	62	0	58	44	775	95	127	754	10
Pedestrian Volume [ped/h]	0			0								

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]				
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.02	0.00	0.01	0.95	0.00	0.10	0.05	0.00	0.00	0.16	0.00	0.00
d_M, Delay for Movement [s/veh]	60.89	78.98	11.18	195.54	209.52	146.58	9.50	0.00	0.00	10.59	0.00	0.00
Movement LOS	F	F	B	F	F	F	A	A	A	B	A	A
95th-Percentile Queue Length [veh]	0.08	0.08	0.08	7.10	7.10	7.10	0.16	0.00	0.00	0.59	0.00	0.00
95th-Percentile Queue Length [ft]	2.06	2.06	2.06	177.61	177.61	177.61	4.11	0.00	0.00	14.70	0.00	0.00
d_A, Approach Delay [s/veh]	17.39			171.88			0.46			1.51		
Approach LOS	C			F			A			A		
d_I, Intersection Delay [s/veh]	11.65											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 4: Innovation Drive/Double R Blvd**

Control Type:	Two-way stop	Delay (sec / veh):	16.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.121

**Intersection Setup**

Name	Northbound		Southbound		Innovation Dr Eastbound	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration			T		T	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]		12.00	12.00	12.00		12.00
No. of Lanes in Pocket		0	0	0		0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Southbound		Innovation Dr Eastbound	
Base Volume Input [veh/h]		951	1201	3		22
Base Volume Adjustment Factor		1.0000	1.0000	1.0000		1.0000
Heavy Vehicles Percentage [%]		2.00	2.00	2.00		2.00
Growth Rate		1.00	1.00	1.00		1.00
In-Process Volume [veh/h]		0	0	0		0
Site-Generated Trips [veh/h]		96	19	40		13
Diverted Trips [veh/h]		0	0	0		0
Pass-by Trips [veh/h]		0	0	0		0
Existing Site Adjustment Volume [veh/h]		0	0	0		0
Other Volume [veh/h]		0	0	0		0
Total Hourly Volume [veh/h]		1047	1220	43		35
Peak Hour Factor		0.8300	0.8300	0.8300		0.8300
Other Adjustment Factor		1.0000	1.0000	1.0000		1.0000
Total 15-Minute Volume [veh/h]		315	367	13		11
Total Analysis Volume [veh/h]		1261	1470	52		42
Pedestrian Volume [ped/h]		0	0	0		0

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]			
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.12
d_M, Delay for Movement [s/veh]	0.00	16.76	16.76	16.76	16.76	16.76
Movement LOS		A	A	A		C
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.41
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00	10.19
d_A, Approach Delay [s/veh]	0.00		0.00		16.76	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]				0.25		
Intersection LOS				C		

**Intersection Level Of Service Report**  
**Intersection 5: Innovation Dr/Project Dwy #1**

Control Type:	Two-way stop	Delay (sec / veh):	10.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

**Intersection Setup**

Name	Northbound			Southbound			Innovation Dr Eastbound			Innovation Dr Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Northbound			Southbound			Innovation Dr Eastbound			Innovation Dr Westbound		
Base Volume Input [veh/h]	6	0	15	0	0	0	0	21	31	0	3	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	2	0	35	14	113	0	0	53	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	0	15	2	0	35	14	134	31	0	56	0
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	4	1	0	10	4	34	8	0	14	0
Total Analysis Volume [veh/h]	7	0	18	2	0	42	14	134	31	0	56	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]				
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.02	0.00	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	10.56	10.59	9.15	10.37	10.73	8.73	7.35	7.55	7.55	7.55	7.55	7.55
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.09	0.09	0.09	0.14	0.14	0.14	0.39	0.39	0.39	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	2.37	2.37	2.37	3.48	3.48	3.48	9.78	9.78	9.78	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.55			8.81			0.57			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.40											
Intersection LOS	B											

**Intersection Level Of Service Report**  
**Intersection 6: Innovation Dr/Project Dwy #2**

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

**Intersection Setup**

Name	Northbound			Southbound			Innovation Dr Eastbound			Innovation Dr Westbound		
Approach	+			+			+			+		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]												
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Northbound			Southbound			Innovation Dr Eastbound			Innovation Dr Westbound		
Base Volume Input [veh/h]	2	0	5	0	0	0	0	24	12	1	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	8	0	32	99	17	0	0	21	29
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	0	5	8	0	32	99	41	12	1	22	29
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	2	2	0	10	25	10	3	0	6	7
Total Analysis Volume [veh/h]	2	0	6	10	0	39	99	41	12	1	22	29
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]				
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.02	0.00	0.04	0.06	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	11.11	11.32	8.56	10.95	11.43	8.70	7.47	0.00	0.00	7.32	0.00	0.00
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.03	0.03	0.03	0.17	0.17	0.17	0.32	0.32	0.32	0.10	0.10	0.10
95th-Percentile Queue Length [ft]	0.70	0.70	0.70	4.24	4.24	4.24	8.11	8.11	8.11	2.60	2.60	2.60
d_A, Approach Delay [s/veh]	9.20			9.16			4.87			0.14		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	4.86											
Intersection LOS	B											

**Intersection Level Of Service Report**  
**Intersection 7: Innovation Dr/Project Dwy #3**

Control Type:	Two-way stop	Delay (sec / veh):	9.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

**Intersection Setup**

Name	Northbound			Southbound			Innovation Dr Eastbound			Innovation Dr Westbound		
Approach	+			+			+			+		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0		0	0		0	0		0	0		0
Pocket Length [ft]												
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Northbound			Southbound			Innovation Dr Eastbound			Innovation Dr Westbound		
Base Volume Input [veh/h]	1	0	2	0	0	0	0	20	9	2	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	3	0	9	15	10	0	0	40	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	2	3	0	9	15	30	9	2	41	0
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	1	1	0	3	5	8	2	1	10	0
Total Analysis Volume [veh/h]	1	0	2	4	0	11	18	30	9	2	41	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	5	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.32	9.72	8.48	9.29	9.79	8.55	7.32	7.29	7.29	7.29	7.29	7.29
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.01	0.05	0.05	0.05	0.11	0.11	0.11	0.08	0.08	0.08
95th-Percentile Queue Length [ft]	0.23	0.23	0.23	1.17	1.17	1.17	2.83	2.83	2.83	2.11	2.11	2.11
d_A, Approach Delay [s/veh]	8.76			8.75			2.31			0.34		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.58											
Intersection LOS	A											

**Intersection Level Of Service Report**  
**Intersection 8: Longley Ln/Project Dwy #4**

Control Type:	Two-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.005

**Intersection Setup**

Name	Longley Ln			Longley Ln								
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	1	1	1	1	0	0	0	0	0	0	0
Pocket Length [ft]	125.00	125.00	125.00	200.00	200.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

**Volumes**

Name	Longley Ln			Longley Ln								
Base Volume Input [veh/h]	560	0	0	664	8	0	0	0	0	0	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	64	52	86	58	0	0	0	0	42	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	624	52	86	722	8	0	0	0	42	0	0	3
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200	1.0000	0.8200	0.8200	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	190	16	26	220	2	0	0	0	11	0	0	1
Total Analysis Volume [veh/h]	761	63	105	880	10	0	0	0	42	0	0	3
Pedestrian Volume [ped/h]							0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]				
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.12	0.00	0.00	0.00	0.00	0.07	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	9.85	0.00	0.00	0.00	0.00	11.26	0.00	0.00	11.46
Movement LOS		A	A	A	A	A			B			B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.42	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.02
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	10.57	0.00	0.00	0.00	0.00	5.46	0.00	0.00	0.40
d_A, Approach Delay [s/veh]	0.00			1.04			11.26			11.46		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	0.83											
Intersection LOS	B											

Option 1: Mitigation\_ Longley Lane/Innovation Dr

Number	3											
Intersection	Longley Lane/Innovation Dr											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Innovation Dr			Innovation Dr			Longley Ln			Longley Ln		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	1	0	6	3	0	6	36	553	7	45	611	8
Total Analysis Volume [veh/h]	1	0	7	58	0	42	44	775	95	127	758	10

Intersection Settings

Cycle Length [s]	60											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Semi-actuated											
Lost time [s]	0.00											
Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group		8			4		5	2		1	6	
Auxiliary Signal Groups												
Lead / Lag							Lead			Lead		
Minimum Green [s]		5			5		5	5		5	5	
Maximum Green [s]		30			30		30	30		30	30	
Amber [s]		3.0			3.0		3.0	3.0		3.0	3.0	
All red [s]		1.0			1.0		1.0	1.0		1.0	1.0	
Split [s]		30			30		9	21		9	21	
Walk [s]		7			7			7			7	
Pedestrian Clearance [s]		19			19			10			10	
l1, Start-Up Lost Time [s]		2.0			2.0		2.0	2.0		2.0	2.0	
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

Lane Group Calculations

g / C, Green / Cycle	0.07	0.07	0.07	0.04	0.65	0.65	0.08	0.69	0.69
(v / s)_i Volume / Saturation Flow Rate	0.01	0.05	0.03	0.03	0.26	0.26	0.08	0.23	0.23
so, Base Saturation Flow per Lane [veh/h/lr]	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3	3		3			3		
s, saturation flow rate [veh/h]	958	1267	1431	1603	1683	1619	1603	1683	1675
c, Capacity [veh/h]	135	133	101	70	1087	1046	134	1154	1149
X, volume / capacity	0.06	0.44	0.42	0.63	0.41	0.41	0.95	0.33	0.33
d, Delay for Lane Group [s/veh]	26.26	29.46	29.42	37.18	6.23	6.28	53.30	4.62	4.62
Lane Group LOS	C	C	C	D	A	A	D	A	A
Critical Lane Group	No	Yes	No	No	No	Yes	Yes	No	No

50th-Percentile Queue Length [veh]	0.11	0.85	0.62	0.76	2.14	2.08	2.67	1.41	1.41
50th-Percentile Queue Length [ft]	2.71	21.30	15.57	19.12	53.58	51.89	66.78	35.26	35.13
95th-Percentile Queue Length [veh]	0.20	1.53	1.12	1.38	3.86	3.74	4.81	2.54	2.53
95th-Percentile Queue Length [ft]	4.88	38.35	28.02	34.42	96.44	93.39	120.21	63.47	63.23

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	26.26	26.26	26.26	29.46	29.42	29.42	37.18	6.25	6.28	53.30	4.62	4.62
Movement LOS	C	C	C	C	C	C	D	A	A	D	A	A
Critical Movement	No	No	No	No	No	No	No	No	No	Yes	No	No
d_A, Approach Delay [s/veh]	26.26			29.45			7.75			11.53		
Approach LOS	C			C			A			B		
d_I, Intersection Delay [s/veh]	10.72											
Intersection LOS	B											
Intersection V/C	0.388											

**Intersection Level Of Service Report**  
**Intersection 1: Longley Ln / Airway Dr**

Control Type:	Signalized	Delay (sec / veh):	40.8
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.726

**Intersection Setup**

Name	Longley Ln			Longley Ln			Double R Blvd			Airway Dr		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1		1	2		1	1		1	1		1
Pocket Length [ft]	180.00		140.00	300.00		140.00	250.00		250.00	250.00		250.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Longley Ln			Longley Ln			Double R Blvd			Airway Dr		
Base Volume Input [veh/h]	149	483	15	659	573	52	58	711	958	205	390	99
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	141	141	19	28	34	0	3	0	0	0	25	37
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]			0			0			0			0
Total Hourly Volume [veh/h]	290	624	34	687	607	52	61	711	958	205	415	136
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	81	173	9	191	169	0	17	198	0	57	115	38
Total Analysis Volume [veh/h]	322	693	38	763	674	0	68	790	0	228	461	151
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]												
Local Bus Stopping Rate [/h]			0			0			0			0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	
Cycle Length [s]	145
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	1	1	6	1	3	8	1	7	4	1
Auxiliary Signal Groups												
Lead / Lag	Lead			Lead			Lead			Lead		
Minimum Green [s]	6	8	1	6	8	1	6	6	1	6	6	1
Maximum Green [s]	36	35	1	35	35	1	25	30	1	25	30	1
Amber [s]	3.5	4.7	1	3.5	4.7	1	3.5	4.0	1	3.5	4.0	1
All red [s]	0.5	1.0	1	1.5	1.0	1	0.5	1.0	1	0.5	1.0	1
Split [s]	40	41	1	40	41	1	29	35	1	29	35	1
Vehicle Extension [s]	2.5	2.0	1	3.0	2.0	1	2.5	2.5	1	2.5	2.5	1
Walk [s]		7	1		7	1		7	1		7	1
Pedestrian Clearance [s]		23	1		21	1		28	1		28	1
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	1	2.0	2.0	1	2.0	2.0	1	2.0	2.0	1
I2, Clearance Lost Time [s]	2.0	3.7	1	3.0	3.7	1	2.0	3.0	1	2.0	3.0	1
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	104	104	104	104	104	104	104	104	104	104	104	104
L, Total Lost Time per Cycle [s]	4.00	5.70	5.70	5.00	5.70	5.70	4.00	5.00	5.00	4.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.70	3.70	3.00	3.70	3.70	2.00	3.00	3.00	2.00	3.00	3.00
g_i, Effective Green Time [s]	23	18	18	28	25	25	6	21	21	17	32	32
g / C, Green / Cycle	0.22	0.18	0.18	0.27	0.24	0.24	0.05	0.20	0.20	0.16	0.31	0.31
(v / s)_j Volume / Saturation Flow Rate	0.20	0.15	0.03	0.25	0.21	0.00	0.04	0.17	0.00	0.14	0.10	0.11
s, saturation flow rate [veh/h]	1603	4584	1431	3113	3204	1431	1603	4584	1431	1603	4584	1431
c, Capacity [veh/h]	354	806	251	851	763	340	86	919	287	259	1413	441
d1, Uniform Delay [s]	39.60	41.71	36.37	36.45	38.33	0.00	48.75	40.25	0.00	42.74	27.73	27.88
k, delay calibration	0.12	0.04	0.04	0.11	0.04	0.04	0.08	0.08	0.08	0.12	0.08	0.08
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.10	1.08	0.10	3.67	1.40	0.00	11.40	1.87	0.00	10.51	0.10	0.34
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.91	0.86	0.15	0.90	0.88	0.00	0.79	0.86	0.00	0.88	0.33	0.34
d, Delay for Lane Group [s/veh]	49.70	42.79	36.47	40.12	39.73	0.00	60.15	42.12	0.00	53.25	27.83	28.22
Lane Group LOS	D	D	D	D	D	A	E	D	A	D	C	C
Critical Lane Group	Yes	No	No	No	Yes	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	8.90	5.78	0.82	9.58	8.31	0.00	2.01	6.59	0.00	6.43	2.93	2.93
50th-Percentile Queue Length [ft]	222.54	144.38	20.60	239.61	207.79	0.00	50.21	164.74	0.00	160.71	73.36	73.22
95th-Percentile Queue Length [veh]	13.79	9.72	1.48	14.66	13.04	0.00	3.62	10.80	0.00	10.59	5.28	5.27
95th-Percentile Queue Length [ft]	344.87	242.91	37.08	366.54	325.99	0.00	90.38	269.99	0.00	264.66	132.06	131.79

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	49.70	42.79	36.47	40.12	39.73	0.00	60.15	42.12	0.00	53.25	27.83	28.22
Movement LOS	D	D	D	D	D	A	E	D	A	D	C	C
d_A, Approach Delay [s/veh]	44.68			39.94			43.55			34.80		
Approach LOS	D			D			D			C		
d_I, Intersection Delay [s/veh]	40.84											
Intersection LOS	D											
Intersection V/C	0.726											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0		11.0		11.0		11.0	
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00		0.00		0.00		0.00	
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00		0.00		0.00		0.00	
d_p, Pedestrian Delay [s]	61.92		61.92		61.92		61.92	
I_p,int, Pedestrian LOS Score for Intersection	2.888		3.036		3.007		2.986	
Crosswalk LOS	C		C		C		C	
s_b, Saturation Flow Rate of the bicycle lane	2000		2000		2000		2000	
c_b, Capacity of the bicycle lane [bicycles/h]	487		487		414		414	
d_b, Bicycle Delay [s]	41.50		41.50		45.60		45.60	
I_b,int, Bicycle LOS Score for Intersection	2.139		2.745		2.032		2.022	
Bicycle LOS	B		B		B		B	

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**

**Intersection 2: Double R Blvd/Reno Corporate Drive/Project Access**

Control Type:	Two-way stop	Delay (sec / veh):	2,073.2
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

**Intersection Setup**

Name	Northbound			Double R Blvd Southbound			Eastbound			Southwestbound		
Approach	Northbound			Southbound			Eastbound			Southwestbound		
Lane Configuration	↵			↵			↵			↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	0	0	0
Pocket Length [ft]	220.00	100.00	70.00	170.00	100.00	110.00	150.00	140.00	100.00	170.00	100.00	150.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Northbound			Double R Blvd Southbound			Eastbound			Southwestbound		
Base Volume Input [veh/h]	0	1649	24	13	1051	0	0	0	0	42	0	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	47	3	0	0	23	49	0	0	79	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	47	1652	24	13	1074	49	0	0	79	42	0	77
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	444	6	3	289	13	0	0	21	11	0	21
Total Analysis Volume [veh/h]	51	1776	26	14	1155	53	0	0	85	45	0	83
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				No
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.09	0.00	0.00	0.04	0.00	0.00	0.00	0.00	0.19	4.15	0.00	0.29
d_M, Delay for Movement [s/veh]	11.97	0.00	0.00	16.25	0.00	0.00	0.00	0.00	14.67	2030.43	2073.16	1711.42
Movement LOS	B	A	A	C	A	A			B	F	F	F
95th-Percentile Queue Length [veh]	0.29	0.00	0.00	0.13	0.00	0.00	0.00	0.00	0.68	15.49	15.49	15.49
95th-Percentile Queue Length [ft]	7.37	0.00	0.00	3.27	0.00	0.00	0.00	0.00	16.90	387.31	387.31	387.31
d_A, Approach Delay [s/veh]	0.33			0.19			14.67			1823.57		
Approach LOS	A			A			B			F		
d_I, Intersection Delay [s/veh]	71.62											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 3: Longley Lane/Innovation Dr**

Control Type:	Two-way stop	Delay (sec / veh):	500.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

**Intersection Setup**

Name	Innovation Dr			Innovation Dr			Longley Ln			Longley Ln		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration	T			T			T T			T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

**Volumes**

Name	Innovation Dr			Innovation Dr			Longley Ln			Longley Ln		
Base Volume Input [veh/h]	5	5	24	2	0	18	9	624	4	13	715	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	167	0	159	0	38	36	30	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	24	169	0	177	9	662	40	43	715	2
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	7	46	0	48	2	180	11	12	194	1
Total Analysis Volume [veh/h]	5	5	26	184	0	192	10	720	43	47	777	2
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0		
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0		

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.06	0.06	0.04	1.63	0.00	0.31	0.01	0.03	0.00	0.06	0.01	0.00
d_M, Delay for Movement [s/veh]	50.69	47.62	13.82	493.85	500.62	467.89	9.37	9.37	9.37	9.51	9.37	9.37
Movement LOS	F	E	B	F	F	F	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.55	0.55	0.55	27.81	27.81	27.81	0.04	0.00	0.00	0.18	0.00	0.00
95th-Percentile Queue Length [ft]	13.68	13.68	13.68	695.18	695.18	695.18	0.91	0.00	0.00	4.41	0.00	0.00
d_A, Approach Delay [s/veh]	23.64			480.59			0.12			0.54		
Approach LOS	C			F			A			A		
d_I, Intersection Delay [s/veh]	90.55											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 4: Innovation Drive/Double R Blvd**

Control Type:	Two-way stop	Delay (sec / veh):	15.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.195

**Intersection Setup**

Name	Northbound		Southbound		Innovation Dr Eastbound	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration			T		r	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Southbound		Innovation Dr Eastbound	
Base Volume Input [veh/h]	1673	1100	1		20	
Base Volume Adjustment Factor	1.0000	1.0000	1.0000		1.0000	
Heavy Vehicles Percentage [%]	3.00	3.00	3.00		3.00	
Growth Rate	1.00	1.00	1.00		1.00	
In-Process Volume [veh/h]	0	0	0		0	
Site-Generated Trips [veh/h]	49	57	45		56	
Diverted Trips [veh/h]	0	0	0		0	
Pass-by Trips [veh/h]	0	0	0		0	
Existing Site Adjustment Volume [veh/h]	0	0	0		0	
Other Volume [veh/h]	0	0	0		0	
Total Hourly Volume [veh/h]	1722	1157	46		76	
Peak Hour Factor	0.9400	0.9400	0.9400		0.9400	
Other Adjustment Factor	1.0000	1.0000	1.0000		1.0000	
Total 15-Minute Volume [veh/h]	458	308	12		20	
Total Analysis Volume [veh/h]	1832	1231	49		81	
Pedestrian Volume [ped/h]	0	0	0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]			
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.19	0.19	0.19	0.19	0.19	0.19
d_M, Delay for Movement [s/veh]	15.75	15.75	15.75	15.75	15.75	15.75
Movement LOS	A	A	A	A	A	C
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.71
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00	17.85
d_A, Approach Delay [s/veh]	0.00		0.00		15.75	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.40					
Intersection LOS	C					

**Intersection Level Of Service Report**  
**Intersection 5: Innovation Dr/Project Dwy #1**

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.028

**Intersection Setup**

Name	Northbound			Southbound			Innovation Dr Eastbound			Innovation Dr Westbound		
Approach	+			+			+			+		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Northbound			Southbound			Innovation Dr Eastbound			Innovation Dr Westbound		
Base Volume Input [veh/h]	13	0	13	0	0	0	0	7	10	0	7	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	5	0	100	7	60	0	0	226	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	0	13	5	0	100	7	67	10	0	233	0
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	0	4	1	0	27	2	17	3	0	58	0
Total Analysis Volume [veh/h]	14	0	14	5	0	109	8	67	10	0	233	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]				
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.03	0.00	0.01	0.01	0.00	0.14	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.43	11.32	8.87	11.63	11.87	10.22	7.71	7.37	7.37	7.37	7.37	7.37
Movement LOS	B	B	A	B	B	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.13	0.13	0.13	0.50	0.50	0.50	0.20	0.20	0.20	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	3.29	3.29	3.29	12.48	12.48	12.48	5.10	5.10	5.10	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	10.65			10.28			0.73			0.00		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	3.33											
Intersection LOS	B											

**Intersection Level Of Service Report**  
**Intersection 6: Innovation Dr/Project Dwy #2**

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.012

**Intersection Setup**

Name	Northbound			Southbound			Innovation Dr Eastbound			Innovation Dr Westbound		
Approach	+			+			+			+		
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0		0	0		0	0		0	0		0
Pocket Length [ft]												
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Northbound			Southbound			Innovation Dr Eastbound			Innovation Dr Westbound		
Base Volume Input [veh/h]	5	0	5	0	0	0	0	16	4	1	2	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	43	0	163	52	13	0	0	63	15
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	0	5	43	0	163	52	29	4	1	65	15
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	1	12	0	45	14	7	1	0	16	4
Total Analysis Volume [veh/h]	6	0	6	48	0	181	58	29	4	1	65	15
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]				
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.01	0.07	0.00	0.18	0.04	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	12.19	10.68	8.55	11.42	11.87	9.96	7.47	7.28	7.28	7.28	7.28	7.28
Movement LOS	B	B	A	B	B	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.05	0.05	0.05	0.99	0.99	0.99	0.19	0.19	0.19	0.16	0.16	0.16
95th-Percentile Queue Length [ft]	1.34	1.34	1.34	24.84	24.84	24.84	4.78	4.78	4.78	4.05	4.05	4.05
d_A, Approach Delay [s/veh]	10.37			10.26			4.76			0.09		
Approach LOS	B			B			A			A		
d_I, Intersection Delay [s/veh]	7.06											
Intersection LOS	B											

**Intersection Level Of Service Report**  
**Intersection 7: Innovation Dr/Project Dwy #3**

Control Type:	Two-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

**Intersection Setup**

Name							Innovation Dr			Innovation Dr		
	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+			+			+			+		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name							Innovation Dr			Innovation Dr		
	Base Volume Input [veh/h]	2	0	2	0	0	0	0	18	3	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	8	0	33	7	49	0	0	45	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	0	2	8	0	33	7	67	3	0	46	0
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	0	1	2	0	9	2	17	1	0	12	0
Total Analysis Volume [veh/h]	2	0	2	9	0	37	8	67	3	0	46	0
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.01	0.00	0.04	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	9.60	9.78	8.64	9.49	9.95	8.70	7.32	0.00	0.00	7.35	0.00	0.00
Movement LOS	A	A	A	A	A	A	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.01	0.15	0.15	0.15	0.16	0.16	0.16	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.34	0.34	0.34	3.69	3.69	3.69	3.94	3.94	3.94	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	9.12			8.85			0.75			0.00		
Approach LOS	A			A			A			A		
d_I, Intersection Delay [s/veh]	2.89											
Intersection LOS	A											

**Intersection Level Of Service Report**  
**Intersection 8: Longley Ln/Project Dwy #4**

Control Type:	Two-way stop	Delay (sec / veh):	13.7
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.258

**Intersection Setup**

Name	Longley Ln			Longley Ln								
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	1	1	0	0	0	0	0	0	0	0
Pocket Length [ft]	125.00	125.00	125.00	200.00	200.00	200.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	No			No			Yes			Yes		

**Volumes**

Name	Longley Ln			Longley Ln								
Base Volume Input [veh/h]	647	0	0	0	730	3	0	0	0	0	0	11
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	170	26	44	30	0	0	0	0	131	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	817	26	44	760	3	0	0	0	131	0	0	11
Peak Hour Factor	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100	0.9100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	224	7	12	209	1	0	0	0	36	0	0	3
Total Analysis Volume [veh/h]	898	29	48	835	3	0	0	0	144	0	0	12
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane				
Storage Area [veh]				
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median	0		0	

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.26	0.06	0.06	0.02
d_M, Delay for Movement [s/veh]	0.50	0.80	0.90	10.11	0.00	0.00	0.00	0.00	13.70	0.00	0.00	11.31
Movement LOS		A	A	B	A	A			B			B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.20	0.00	0.00	0.00	0.00	1.02	0.00	0.00	0.06
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	5.10	0.00	0.00	0.00	0.00	25.62	0.00	0.00	1.58
d_A, Approach Delay [s/veh]	0.00			0.55			13.70			11.31		
Approach LOS	A			A			B			B		
d_I, Intersection Delay [s/veh]	1.32											
Intersection LOS	B											

**Option 1: Copy of Longley Lane/Innovation Dr**

Number	3											
Intersection	Longley Lane/Innovation Dr											
Control Type	Signalized											
Analysis Method	HCM 6th Edition											
Name	Innovation Dr			Innovation Dr			Longley Ln			Longley Ln		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Base Volume Input [veh/h]	5	5	24	2	0	18	9	624	4	13	715	2
Total Analysis Volume [veh/h]	5	5	26	50	0	50	10	760	80	77	780	2

**Intersection Settings**

Cycle Length [s]	60											
Coordination Type	Time of Day Pattern Isolated											
Actuation Type	Semi-actuated											
Lost time [s]	0.00											
Control Type	Split	Split	Split	Split	Split	Split	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group		8			4		5	2		1	6	
Auxiliary Signal Groups												
Lead / Lag							Lead			Lead		
Minimum Green [s]		5			5		5	5		5	5	
Maximum Green [s]		30			30		30	30		30	30	
Amber [s]		3.0			3.0		3.0	3.0		3.0	3.0	
All red [s]		1.0			1.0		1.0	1.0		1.0	1.0	
Split [s]		30			30		9	21		9	21	
Walk [s]		7			7			7			7	
Pedestrian Clearance [s]		19			19			10			10	
l1, Start-Up Lost Time [s]		2.0			2.0		2.0	2.0		2.0	2.0	
Minimum Recall		No			No		No	No		No	No	
Maximum Recall		No			No		No	No		No	No	
Pedestrian Recall		No			No		No	No		No	No	
Pedestrian Signal Group	0											
Pedestrian Walk [s]	0											
Pedestrian Clearance [s]	0											

**Lane Group Calculations**

g / C, Green / Cycle	0.07	0.07	0.07	0.01	0.67	0.67	0.06	0.72	0.72
(v / s)_j Volume / Saturation Flow Rate	0.06	0.04	0.03	0.01	0.25	0.25	0.05	0.23	0.23
so, Base Saturation Flow per Lane [veh/h/lr]	1900	1900	1900	1900	1900	1900	1900	1900	1900
Arrival type	3	3		3			3		
s, saturation flow rate [veh/h]	654	1240	1431	1603	1683	1627	1603	1683	1681
c, Capacity [veh/h]	113	126	99	21	1129	1091	97	1208	1207
X, volume / capacity	0.32	0.40	0.51	0.48	0.38	0.38	0.80	0.32	0.32
d, Delay for Lane Group [s/veh]	28.27	29.21	30.91	45.29	5.33	5.36	41.50	3.82	3.82
Lane Group LOS	C	C	C	D	A	A	D	A	A
Critical Lane Group	Yes	No	No	No	No	Yes	Yes	No	No

50th-Percentile Queue Length [veh]	0.52	0.73	0.76	0.23	1.79	1.74	1.40	1.16	1.16
50th-Percentile Queue Length [ft]	12.91	18.29	19.10	5.72	44.65	43.46	35.02	28.94	28.92
95th-Percentile Queue Length [veh]	0.93	1.32	1.38	0.41	3.22	3.13	2.52	2.08	2.08
95th-Percentile Queue Length [ft]	23.24	32.92	34.38	10.30	80.38	78.23	63.04	52.10	52.06

**Movement, Approach, & Intersection Results**

d_M, Delay for Movement [s/veh]	28.27	28.27	28.27	29.21	30.91	30.91	45.29	5.34	5.36	41.50	3.82	3.82
Movement LOS	C	C	C	C	C	C	D	A	A	D	A	A
Critical Movement	No	No	No	No	No	No	Yes	No	No	No	No	No
d_A, Approach Delay [s/veh]	28.27			30.06			5.81			7.20		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	8.21											
Intersection LOS	A											
Intersection V/C	0.357											

**Appendix C**  
**10 Year Horizon Background Conditions**  
**LOS Calculations**

**Intersection Level Of Service Report**  
**Intersection 1: Longley Ln / Airway Dr**

Control Type:	Signalized	Delay (sec / veh):	29.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.634

**Intersection Setup**

Name	Longley Ln			Longley Ln			Double R Blvd			Airway Dr		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration	[Diagram]			[Diagram]			[Diagram]			[Diagram]		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1		1	2		1	1		1	1		1
Pocket Length [ft]	180.00		140.00	300.00		140.00	250.00		250.00	250.00		250.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Longley Ln			Longley Ln			Double R Blvd			Airway Dr		
Base Volume Input [veh/h]	110	426	24	801	512	89	51	324	546	102	411	101
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]			0			0			0			0
Total Hourly Volume [veh/h]	121	469	26	881	563	98	56	356	601	112	452	111
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	36	140	8	262	168	0	17	106	0	33	135	33
Total Analysis Volume [veh/h]	144	558	31	1049	670	0	67	424	0	133	538	132
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]												
Local Bus Stopping Rate [/h]			0			0			0			0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	
Cycle Length [s]	145
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	7	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead			Lead			Lead			Lead		
Minimum Green [s]	6	8	0	6	8	0	6	6	0	6	6	0
Maximum Green [s]	36	35	0	35	35	0	25	30	0	25	30	0
Amber [s]	3.5	4.7	0.0	3.5	4.7	0.0	3.5	4.0	0.0	3.5	4.0	0.0
All red [s]	0.5	1.0	0.0	1.5	1.0	0.0	0.5	1.0	0.0	0.5	1.0	0.0
Split [s]	40	41	0	40	41	0	29	35	0	29	35	0
Vehicle Extension [s]	2.5	2.0	0.0	3.0	2.0	0.0	2.5	2.5	0.0	2.5	2.5	0.0
Walk [s]		7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]		23	0	0	21	0	0	28	0	0	28	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	3.7	0.0	3.0	3.7	0.0	2.0	3.0	0.0	2.0	3.0	0.0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	80	80	80	80	80	80	80	80	80	80	80	80
L, Total Lost Time per Cycle [s]	4.00	5.70	5.70	5.00	5.70	5.70	4.00	5.00	5.00	4.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.70	3.70	3.00	3.70	3.70	2.00	3.00	3.00	2.00	3.00	3.00
g_j, Effective Green Time [s]	9	12	12	30	34	34	5	10	10	8	14	14
g / C, Green / Cycle	0.11	0.15	0.15	0.37	0.43	0.43	0.06	0.12	0.12	0.10	0.17	0.17
(v / s)_j Volume / Saturation Flow Rate	0.09	0.12	0.02	0.34	0.21	0.00	0.04	0.09	0.00	0.08	0.12	0.09
s, saturation flow rate [veh/h]	1603	4584	1431	3113	3204	1431	1603	4584	1431	1603	4584	1431
c, Capacity [veh/h]	178	698	218	1165	1371	612	93	571	178	165	777	243
d1, Uniform Delay [s]	34.80	32.82	29.46	23.68	16.61	0.00	37.13	33.88	0.00	35.17	31.34	30.47
k, delay calibration	0.08	0.04	0.04	0.11	0.04	0.04	0.08	0.08	0.08	0.08	0.08	0.08
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.29	0.81	0.11	2.83	0.10	0.00	7.44	1.44	0.00	6.64	0.83	1.41
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.81	0.80	0.14	0.90	0.49	0.00	0.72	0.74	0.00	0.80	0.69	0.54
d, Delay for Lane Group [s/veh]	41.09	33.63	29.57	26.52	16.71	0.00	44.57	35.32	0.00	41.81	32.17	31.88
Lane Group LOS	D	C	C	C	B	A	D	D	A	D	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	2.98	3.43	0.51	9.19	4.19	0.00	1.46	2.66	0.00	2.78	3.23	2.36
50th-Percentile Queue Length [ft]	74.56	85.85	12.81	229.64	104.70	0.00	36.39	66.47	0.00	69.48	80.66	59.04
95th-Percentile Queue Length [veh]	5.37	6.18	0.92	14.16	7.54	0.00	2.62	4.79	0.00	5.00	5.81	4.25
95th-Percentile Queue Length [ft]	134.21	154.53	23.07	353.90	188.45	0.00	65.50	119.65	0.00	125.07	145.19	106.27

**Movement, Approach, & Intersection Results**

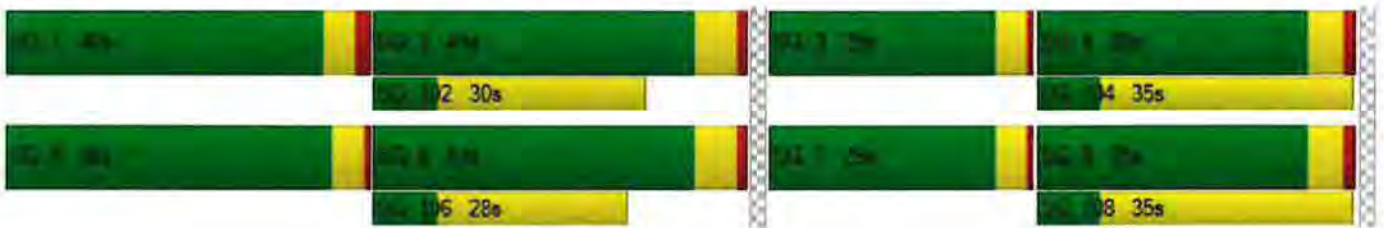
d_M, Delay for Movement [s/veh]	41.09	33.63	29.57	26.52	16.71	0.00	44.57	35.32	0.00	41.81	32.17	31.88
Movement LOS	D	C	C	C	B	A	D	D	A	D	C	C
d_A, Approach Delay [s/veh]	34.92			22.69			36.58			33.72		
Approach LOS	C			C			D			C		
d_I, Intersection Delay [s/veh]	29.27											
Intersection LOS	C											
Intersection V/C	0.634											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0		11.0		11.0		11.0	
M_corner, Corner Circulation Area [ft²/ped]	0.00		0.00		0.00		0.00	
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00		0.00		0.00		0.00	
d_p, Pedestrian Delay [s]	61.92		61.92		61.92		61.92	
I_p,int, Pedestrian LOS Score for Intersection	2.840		3.042		3.005		2.915	
Crosswalk LOS	C		C		C		C	
s_b, Saturation Flow Rate of the bicycle lane	2000		2000		2000		2000	
c_b, Capacity of the bicycle lane [bicycles/h]	487		487		414		414	
d_b, Bicycle Delay [s]	41.50		41.50		45.60		45.60	
I_b,int, Bicycle LOS Score for Intersection	1.963		2.978		1.830		2.001	
Bicycle LOS	A		C		A		B	

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**

**Intersection 2: Double R Blvd/Reno Corporate Drive/Project Access**

Control Type:	Two-way stop	Delay (sec / veh):	825.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

**Intersection Setup**

Name	Double R Blvd											
Approach	Northbound			Southbound			Eastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	0	0	0	0	0	0
Pocket Length [ft]	220.00	100.00	70.00	170.00	100.00	110.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Double R Blvd											
Base Volume Input [veh/h]	0	907	44	73	1163	0	0	0	0	36	0	14
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	998	48	80	1279	0	0	0	0	36	0	14
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	297	14	24	381	0	0	0	0	11	0	4
Total Analysis Volume [veh/h]	0	1188	57	95	1523	0	0	0	0	43	0	17
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]				
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	1.79	0.00	0.04
d_M, Delay for Movement [s/veh]	13.30	0.00	0.00	12.82	0.00	0.00	214.74	310.04	15.35	695.58	825.31	553.61
Movement LOS	B	A	A	B	A	A	F	F	C	F	F	F
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00	6.74	6.74	6.74
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	15.33	0.00	0.00	0.00	0.00	0.00	168.49	168.49	168.49
d_A, Approach Delay [s/veh]	0.00			0.75			180.04			655.36		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	13.87											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 3: Longley Lane/Innovation Dr**

Control Type:	Two-way stop	Delay (sec / veh):	59.9
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

**Intersection Setup**

Name	Innovation Dr			Innovation Dr			Longley Ln			Longley Ln		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration	T			T			T T			T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	1	0	0	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	200.00	100.00	100.00	200.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

**Volumes**

Name	Innovation Dr			Innovation Dr			Longley Ln			Longley Ln		
Base Volume Input [veh/h]	1	0	6	3	0	6	36	553	7	45	611	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	0	6	3	0	6	40	608	8	50	672	9
Peak Hour Factor	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100	0.8100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	2	1	0	2	12	188	2	15	207	3
Total Analysis Volume [veh/h]	1	0	7	4	0	7	49	751	10	62	830	11
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]	0	0	0	0
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median	0	0	0	0

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.00	0.01	0.04	0.00	0.01	0.06	0.07	0.07	0.07	0.07	0.00
d_M, Delay for Movement [s/veh]	48.07	59.10	11.45	46.07	59.95	11.91	9.86	9.59	9.59	9.59	9.59	9.59
Movement LOS	E	F	B	E	F	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.07	0.07	0.07	0.18	0.18	0.18	0.20	0.00	0.00	0.24	0.00	0.00
95th-Percentile Queue Length [ft]	1.84	1.84	1.84	4.40	4.40	4.40	4.95	0.00	0.00	5.91	0.00	0.00
d_A, Approach Delay [s/veh]	16.03			24.33			0.60			0.66		
Approach LOS	C			C			A			A		
d_I, Intersection Delay [s/veh]	0.85											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 4: Innovation Drive/Double R Blvd**

Control Type:	Two-way stop	Delay (sec / veh):	16.9
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.082

**Intersection Setup**

Name	Northbound		Southbound		Innovation Dr Eastbound	
Approach			T		T	
Lane Configuration			T		T	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Southbound		Innovation Dr Eastbound	
Base Volume Input [veh/h]	0	951	1201	3	0	22
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.10	1.10	1.10	1.10	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1046	1321	3	0	22
Peak Hour Factor	0.8300	0.8300	0.8300	0.8300	0.8300	0.8300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	315	398	1	0	7
Total Analysis Volume [veh/h]	0	1260	1592	4	0	27
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0		

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.08
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	16.92
Movement LOS		A	A	A		C
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.27
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00	6.66
d_A, Approach Delay [s/veh]	0.00		0.00		16.92	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]						0.16
Intersection LOS						C

**Intersection Level Of Service Report**  
**Intersection 5: Innovation Dr/Project Dwy #1**

Control Type:	Two-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

**Intersection Setup**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	←		↑		↓	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Base Volume Input [veh/h]	6	15	21	31	0	3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	6	15	21	31	0	3
Peak Hour Factor	0.8400	0.8400	0.8400	0.8400	0.8400	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	4	6	9	0	1
Total Analysis Volume [veh/h]	7	18	25	37	0	4
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.02	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.83	8.60	0.00	0.00	7.34	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.08	0.08	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	1.91	1.91	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.66		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.38					
Intersection LOS	A					

**Intersection Level Of Service Report**  
**Intersection 6: Innovation Dr/Project Dwy #2**

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

**Intersection Setup**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Base Volume Input [veh/h]	2	5	24	12	1	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	5	24	12	1	1
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	2	7	4	0	0
Total Analysis Volume [veh/h]	2	6	29	15	1	1
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.01	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	8.73	8.50	0.00	0.00	7.30	0.00
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.02	0.02	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.59	0.59	0.00	0.00	0.10	0.10
d_A, Approach Delay [s/veh]	8.56		0.00		3.65	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.40					
Intersection LOS	A					

**Intersection Level Of Service Report**  
**Intersection 7: Innovation Dr/Project Dwy #3**

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

**Intersection Setup**

Name	Northbound		Eastbound		Westbound	
Approach						
Lane Configuration	<b>T</b>		<b>T</b>		<b>T</b>	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Eastbound		Westbound	
Base Volume Input [veh/h]	1	2	20	9	2	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	2	20	9	2	1
Peak Hour Factor	0.8200	0.8200	0.8200	0.8200	0.8200	0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	6	3	1	0
Total Analysis Volume [veh/h]	1	2	24	11	2	1
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00			0.00	0.00
d_M, Delay for Movement [s/veh]	8.69	8.45			7.29	8.45
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft]	0.22	0.22	0.00	0.00	0.14	0.14
d_A, Approach Delay [s/veh]	8.53		0.00		4.86	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.98					
Intersection LOS	A					

**Intersection Level Of Service Report**  
**Intersection 8: Longley Ln/Project Dwy #4**

Control Type:	Two-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.007

**Intersection Setup**

Name	Longley Ln		Longley Ln			
Approach	Northeastbound		Southwestbound		Southeastbound	
Lane Configuration					└	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00		12.00
No. of Lanes in Pocket		0	0	0		0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Longley Ln		Longley Ln			
Base Volume Input [veh/h]		560	664	8		3
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000		1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00		2.00
Growth Rate	1.10	1.10	1.10	1.00		1.00
In-Process Volume [veh/h]		0	0	0		0
Site-Generated Trips [veh/h]		0	0	0		0
Diverted Trips [veh/h]		0	0	0		0
Pass-by Trips [veh/h]		0	0	0		0
Existing Site Adjustment Volume [veh/h]		0	0	0		0
Other Volume [veh/h]		0	0	0		0
Total Hourly Volume [veh/h]		616	730	8		3
Peak Hour Factor		0.8200	0.8200	1.0000		0.8200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000		1.0000
Total 15-Minute Volume [veh/h]		188	223	2		1
Total Analysis Volume [veh/h]		751	890	8		4
Pedestrian Volume [ped/h]						0

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]			
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.30	0.07	0.01	0.10		0.01
d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00		11.51
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00		0.02
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00		0.54
d_A, Approach Delay [s/veh]	0.00		0.00			11.51
Approach LOS	A		A			B
d_I, Intersection Delay [s/veh]				0.03		
Intersection LOS				B		

**Intersection Level Of Service Report**  
**Intersection 1: Longley Ln / Airway Dr**

Control Type:	Signalized	Delay (sec / veh):	42.1
Analysis Method:	HCM 6th Edition	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.734

**Intersection Setup**

Name	Longley Ln			Longley Ln			Double R Blvd			Airway Dr		
Approach	Northeastbound			Southwestbound			Northwestbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1		1	2		1	1		1	1		1
Pocket Length [ft]	180.00		140.00	300.00		140.00	250.00		250.00	250.00		250.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Longley Ln			Longley Ln			Double R Blvd			Airway Dr		
Base Volume Input [veh/h]	149	483	15	659	573	52	58	711	958	205	390	99
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]			0			0			0			0
Total Hourly Volume [veh/h]	164	531	17	725	630	57	64	782	1054	226	429	109
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	0.0000	1.0000	1.0000	0.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	46	148	5	201	175	0	18	217	0	63	119	30
Total Analysis Volume [veh/h]	182	590	19	806	700	0	71	869	0	251	477	121
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]												
Local Bus Stopping Rate [/h]			0			0			0			0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

**Intersection Settings**

Located in CBD	Yes
Signal Coordination Group	
Cycle Length [s]	145
Coordination Type	Time of Day Pattern Isolated
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

**Phasing & Timing**

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead			Lead			Lead			Lead		
Minimum Green [s]	6	8	0	6	8	0	6	6	0	6	6	0
Maximum Green [s]	36	35	0	35	35	0	25	30	0	25	30	0
Amber [s]	3.5	4.7	0	3.5	4.7	0	3.5	4.0	0	3.5	4.0	0
All red [s]	0.5	1.0	0	1.5	1.0	0	0.5	1.0	0	0.5	1.0	0
Split [s]	40	41	0	40	41	0	29	35	0	29	35	0
Vehicle Extension [s]	2.5	2.0	0	3.0	2.0	0	2.5	2.5	0	2.5	2.5	0
Walk [s]	0	7	0	0	7	0	0	7	0	0	7	0
Pedestrian Clearance [s]	0	23	0	0	21	0	0	28	0	0	28	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0	2.0	2.0	0	2.0	2.0	0	2.0	2.0	0
I2, Clearance Lost Time [s]	2.0	3.7	0	3.0	3.7	0	2.0	3.0	0	2.0	3.0	0
Minimum Recall	No	Yes		No	Yes		No	No		No	No	
Maximum Recall	No	No		No	No		No	No		No	No	
Pedestrian Recall	No	No		No	No		No	No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Exclusive Pedestrian Phase**

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

**Lane Group Calculations**

Lane Group	L	C	R	L	C	R	L	C	R	L	C	R
C, Cycle Length [s]	111	111	111	111	111	111	111	111	111	111	111	111
L, Total Lost Time per Cycle [s]	4.00	5.70	5.70	5.00	5.70	5.70	4.00	5.00	5.00	4.00	5.00	5.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	3.70	3.70	3.00	3.70	3.70	2.00	3.00	3.00	2.00	3.00	3.00
g_i, Effective Green Time [s]	15	17	17	31	34	34	6	24	24	19	37	37
g / C, Green / Cycle	0.13	0.15	0.15	0.28	0.31	0.31	0.06	0.22	0.22	0.17	0.33	0.33
(v / s)_j Volume / Saturation Flow Rate	0.11	0.13	0.01	0.26	0.22	0.00	0.04	0.19	0.00	0.16	0.10	0.08
s, saturation flow rate [veh/h]	1603	4584	1431	3113	3204	1431	1603	4584	1431	1603	4584	1431
c, Capacity [veh/h]	211	692	216	879	995	444	89	987	308	279	1529	477
d1, Uniform Delay [s]	47.24	45.97	40.59	38.60	33.79	0.00	51.82	42.22	0.00	44.93	27.54	26.95
k, delay calibration	0.08	0.04	0.04	0.11	0.04	0.04	0.08	0.08	0.08	0.20	0.08	0.08
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	7.58	1.19	0.06	4.36	0.34	0.00	11.10	2.08	0.00	16.89	0.09	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

**Lane Group Results**

X, volume / capacity	0.86	0.85	0.09	0.92	0.70	0.00	0.79	0.88	0.00	0.90	0.31	0.25
d, Delay for Lane Group [s/veh]	54.82	47.16	40.66	42.96	34.13	0.00	62.93	44.30	0.00	61.81	27.62	27.16
Lane Group LOS	D	D	D	D	C	A	E	D	A	E	C	C
Critical Lane Group	No	Yes	No	Yes	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	5.34	5.33	0.45	10.98	8.27	0.00	2.22	7.80	0.00	8.02	3.14	2.36
50th-Percentile Queue Length [ft]	133.59	133.23	11.30	274.62	206.66	0.00	55.56	194.99	0.00	200.56	78.59	58.99
95th-Percentile Queue Length [veh]	9.13	9.11	0.81	16.42	12.98	0.00	4.00	12.38	0.00	12.67	5.66	4.25
95th-Percentile Queue Length [ft]	228.37	227.87	20.34	410.51	324.55	0.00	100.00	309.49	0.00	316.68	141.47	106.19

**Movement, Approach, & Intersection Results**

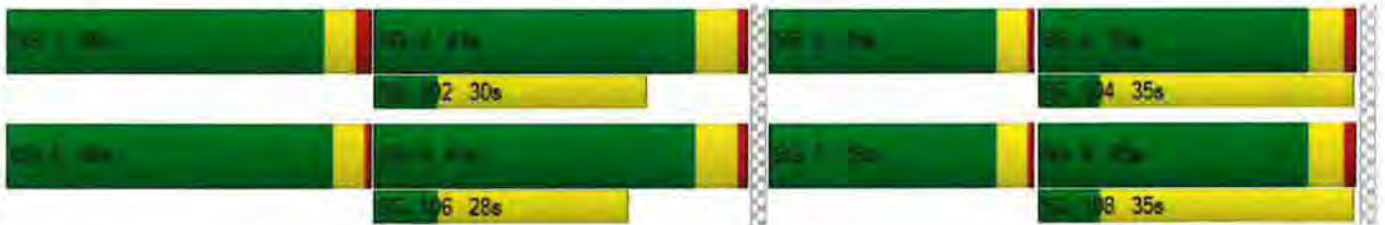
d_M, Delay for Movement [s/veh]	54.82	47.16	40.66	42.96	34.13	0.00	62.93	44.30	0.00	61.81	27.62	27.16
Movement LOS	D	D	D	D	C	A	E	D	A	E	C	C
d_A, Approach Delay [s/veh]	48.77			38.86			45.70			37.67		
Approach LOS	D			D			D			D		
d_I, Intersection Delay [s/veh]	42.10											
Intersection LOS	D											
Intersection V/C	0.734											

**Other Modes**

g_Walk,mi, Effective Walk Time [s]	11.0	11.0	11.0	11.0
M_corner, Corner Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft <sup>2</sup> /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	61.92	61.92	61.92	61.92
I_p,int, Pedestrian LOS Score for Intersection	2.851	3.034	3.021	2.980
Crosswalk LOS	C	C	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	487	487	414	414
d_b, Bicycle Delay [s]	41.50	41.50	45.60	45.60
I_b,int, Bicycle LOS Score for Intersection	1.995	2.802	2.077	2.027
Bicycle LOS	A	C	B	B

**Sequence**

Ring 1	1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	7	8	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



**Intersection Level Of Service Report**

**Intersection 2: Double R Blvd/Reno Corporate Drive/Project Access**

Control Type:	Two-way stop	Delay (sec / veh):	2,022.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

**Intersection Setup**

Name	Northbound			Double R Blvd			Eastbound			Southwestbound		
Approach	Northbound			Southbound			Eastbound			Southwestbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1		1	1		1	0		0	0		0
Pocket Length [ft]	220.00		70.00	170.00		110.00				100.00		100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

**Volumes**

Name	Northbound			Double R Blvd			Eastbound			Southwestbound		
Base Volume Input [veh/h]	0	1649	24	13	1051	0	0	0	0	42	0	77
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.10	1.10	1.10	1.10	1.10	1.10	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1814	28	14	1156	0	0	0	0	42	0	77
Peak Hour Factor	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300	0.9300
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	488	7	4	311	0	0	0	0	11	0	21
Total Analysis Volume [veh/h]	0	1951	28	15	1243	0	0	0	0	45	0	83
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Free	Free	Stop	Stop
Flared Lane			No	No
Storage Area [veh]				
Two-Stage Gap Acceptance			No	No
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00			0.05			0.00	0.00	0.00	3.93	0.00	0.33
d_M, Delay for Movement [s/veh]	11.54			18.35			255.23	431.28	13.42	1928.57	2022.72	1628.94
Movement LOS	B	A	A	C	A	A	F	F	B	F	F	F
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.17	0.00	0.00	0.00	0.00	0.00	15.37	15.37	15.37
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	4.15	0.00	0.00	0.00	0.00	0.00	384.18	384.18	384.18
d_A, Approach Delay [s/veh]	0.00			0.22			233.31			1734.27		
Approach LOS	A			A			F			F		
d_I, Intersection Delay [s/veh]	66.05											
Intersection LOS	F											

**Intersection Level Of Service Report**  
**Intersection 3: Longley Lane/Innovation Dr**

Control Type:	Two-way stop	Delay (sec / veh):	45.7
Analysis Method:	HCM 6th Edition	Level Of Service:	E
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.053

**Intersection Setup**

Name	Innovation Dr			Innovation Dr			Longley Ln			Longley Ln		
Approach	Eastbound			Westbound			Northeastbound			Southwestbound		
Lane Configuration	T			T			T T T			T T T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0		0	0		0	1		0	1		0
Pocket Length [ft]							200.00			200.00		
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			No			No		

**Volumes**

Name	Innovation Dr			Innovation Dr			Longley Ln			Longley Ln		
Base Volume Input [veh/h]	5	5	24	2	0	18	9	624	4	13	715	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.10	1.10	1.10	1.10	1.10	1.10
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	24	2	0	18	10	686	4	14	787	2
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	7	1	0	5	3	186	1	4	214	1
Total Analysis Volume [veh/h]	5	5	26	2	0	20	11	746	4	15	855	2
Pedestrian Volume [ped/h]	0			0			0			0		

**Intersection Settings**

Priority Scheme	Stop	Stop	Free	Free
Flared Lane	No	No		
Storage Area [veh]				
Two-Stage Gap Acceptance	No	No		
Number of Storage Spaces in Median				

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.04	0.05	0.05	0.02	0.00	0.03	0.01	0.07	0.07	0.02	0.07	0.00
d_M, Delay for Movement [s/veh]	38.41	45.74	13.59	35.52	43.77	11.19	9.69	0.00	0.00	9.29	0.00	0.00
Movement LOS	E	E	B	E	E	B	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.49	0.49	0.49	0.15	0.15	0.15	0.04	0.00	0.00	0.05	0.00	0.00
95th-Percentile Queue Length [ft]	12.17	12.17	12.17	3.84	3.84	3.84	1.07	0.00	0.00	1.34	0.00	0.00
d_A, Approach Delay [s/veh]	21.50			13.40			0.14			0.16		
Approach LOS	C			B			A			A		
d_I, Intersection Delay [s/veh]	0.76											
Intersection LOS	E											

**Intersection Level Of Service Report**  
**Intersection 4: Innovation Drive/Double R Blvd**

Control Type:	Two-way stop	Delay (sec / veh):	14.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.051

**Intersection Setup**

Name	Northbound		Southbound		Innovation Dr Eastbound	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration			T		T	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Southbound		Innovation Dr Eastbound	
Base Volume Input [veh/h]	0	1673	1100	1	0	20
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	3.00	3.00	3.00	3.00	3.00	3.00
Growth Rate	1.10	1.10	1.10	1.10	1.10	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	1840	1210	1	0	20
Peak Hour Factor	0.9400	0.9400	0.9400	0.9400	0.9400	0.9400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	489	322	0	0	5
Total Analysis Volume [veh/h]	0	1957	1287	1	0	21
Pedestrian Volume [ped/h]	0	0	0	0	0	0

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]			
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio						0.05
d_M, Delay for Movement [s/veh]						14.18
Movement LOS		A	A	A		B
95th-Percentile Queue Length [veh]		0.00	0.00	0.00		0.16
95th-Percentile Queue Length [ft]		0.00	0.00	0.00		4.00
d_A, Approach Delay [s/veh]		0.00		0.00		14.18
Approach LOS		A		A		B
d_I, Intersection Delay [s/veh]				0.09		
Intersection LOS				B		

**Intersection Level Of Service Report**  
**Intersection 5: Innovation Dr/Project Dwy #1**

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.014

**Intersection Setup**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Base Volume Input [veh/h]	13	13	7	10	0	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	13	7	10	0	7
Peak Hour Factor	0.9200	0.9200	0.9200	0.9200	0.9200	0.9200
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	4	2	3	0	2
Total Analysis Volume [veh/h]	14	14	8	11	0	8
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.01			0.00	
d_M, Delay for Movement [s/veh]	8.72	8.47			7.25	
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.08	0.08	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	2.10	2.10	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.59		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.38					
Intersection LOS	A					

**Intersection Level Of Service Report**  
**Intersection 6: Innovation Dr/Project Dwy #2**

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

**Intersection Setup**

Name	Innovation Dr		Innovation Dr			
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Innovation Dr		Innovation Dr			
Base Volume Input [veh/h]	5	5	16	4	1	2
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	5	16	4	1	2
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	4	1	0	1
Total Analysis Volume [veh/h]	6	6	18	4	1	2
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.01	0.01			0.00	
d_M, Delay for Movement [s/veh]	8.67	8.44			7.26	
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.04	0.04	0.00	0.00	0.01	0.01
95th-Percentile Queue Length [ft]	0.89	0.89	0.00	0.00	0.14	0.14
d_A, Approach Delay [s/veh]	8.56		0.00		2.42	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	2.97					
Intersection LOS	A					

**Intersection Level Of Service Report**  
**Intersection 7: Innovation Dr/Project Dwy #3**

Control Type:	Two-way stop	Delay (sec / veh):	8.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

**Intersection Setup**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Approach						
Lane Configuration	T		T		T	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

**Volumes**

Name	Northbound		Innovation Dr Eastbound		Innovation Dr Westbound	
Base Volume Input [veh/h]	2	2	18	3	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	2	2	18	3	0	1
Peak Hour Factor	0.9000	0.9000	0.9000	0.9000	0.9000	0.9000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	1	5	1	0	0
Total Analysis Volume [veh/h]	2	2	20	3	0	1
Pedestrian Volume [ped/h]	0		0		0	

**Intersection Settings**

Priority Scheme	Stop	Free	Free
Flared Lane	No		
Storage Area [veh]			
Two-Stage Gap Acceptance	No		
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio	0.00	0.00			0.00	
d_M, Delay for Movement [s/veh]	8.64	8.42			7.26	
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.29	0.29	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	8.53		0.00		0.00	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	1.22					
Intersection LOS	A					

**Intersection Level Of Service Report**  
**Intersection 8: Longley Ln/Project Dwy #4**

Control Type:	Two-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.021

**Intersection Setup**

Name	Longley Ln		Longley Ln		Southeastbound	
Approach	Northeastbound		Southwestbound		Southeastbound	
Lane Configuration			T		r	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]		12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket		0	0	0	0	0
Pocket Length [ft]						
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

**Volumes**

Name	Longley Ln		Longley Ln		Southeastbound	
Base Volume Input [veh/h]		647	730	3		11
Base Volume Adjustment Factor		1.0000	1.0000	1.0000		1.0000
Heavy Vehicles Percentage [%]		2.00	2.00	2.00		2.00
Growth Rate		1.10	1.10	1.00		1.00
In-Process Volume [veh/h]		0	0	0		0
Site-Generated Trips [veh/h]		0	0	0		0
Diverted Trips [veh/h]		0	0	0		0
Pass-by Trips [veh/h]		0	0	0		0
Existing Site Adjustment Volume [veh/h]		0	0	0		0
Other Volume [veh/h]		0	0	0		0
Total Hourly Volume [veh/h]		712	803	3		11
Peak Hour Factor		0.9100	0.9100	0.9100		0.9100
Other Adjustment Factor		1.0000	1.0000	1.0000		1.0000
Total 15-Minute Volume [veh/h]		196	221	1		3
Total Analysis Volume [veh/h]		782	882	3		12
Pedestrian Volume [ped/h]						0

**Intersection Settings**

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]			
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median			

**Movement, Approach, & Intersection Results**

V/C, Movement V/C Ratio					0.02
d_M, Delay for Movement [s/veh]					11.54
Movement LOS		A	A	A	B
95th-Percentile Queue Length [veh]		0.00	0.00	0.00	0.07
95th-Percentile Queue Length [ft]		0.00	0.00	0.00	1.63
d_A, Approach Delay [s/veh]		0.00	0.00		11.54
Approach LOS		A	A		B
d_I, Intersection Delay [s/veh]			0.08		
Intersection LOS			B		