

PLATEAU DEVELOPMENT

ZONING MAP AMENDMENT
TENTATIVE SUBDIVISION MAP

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APPENDICES

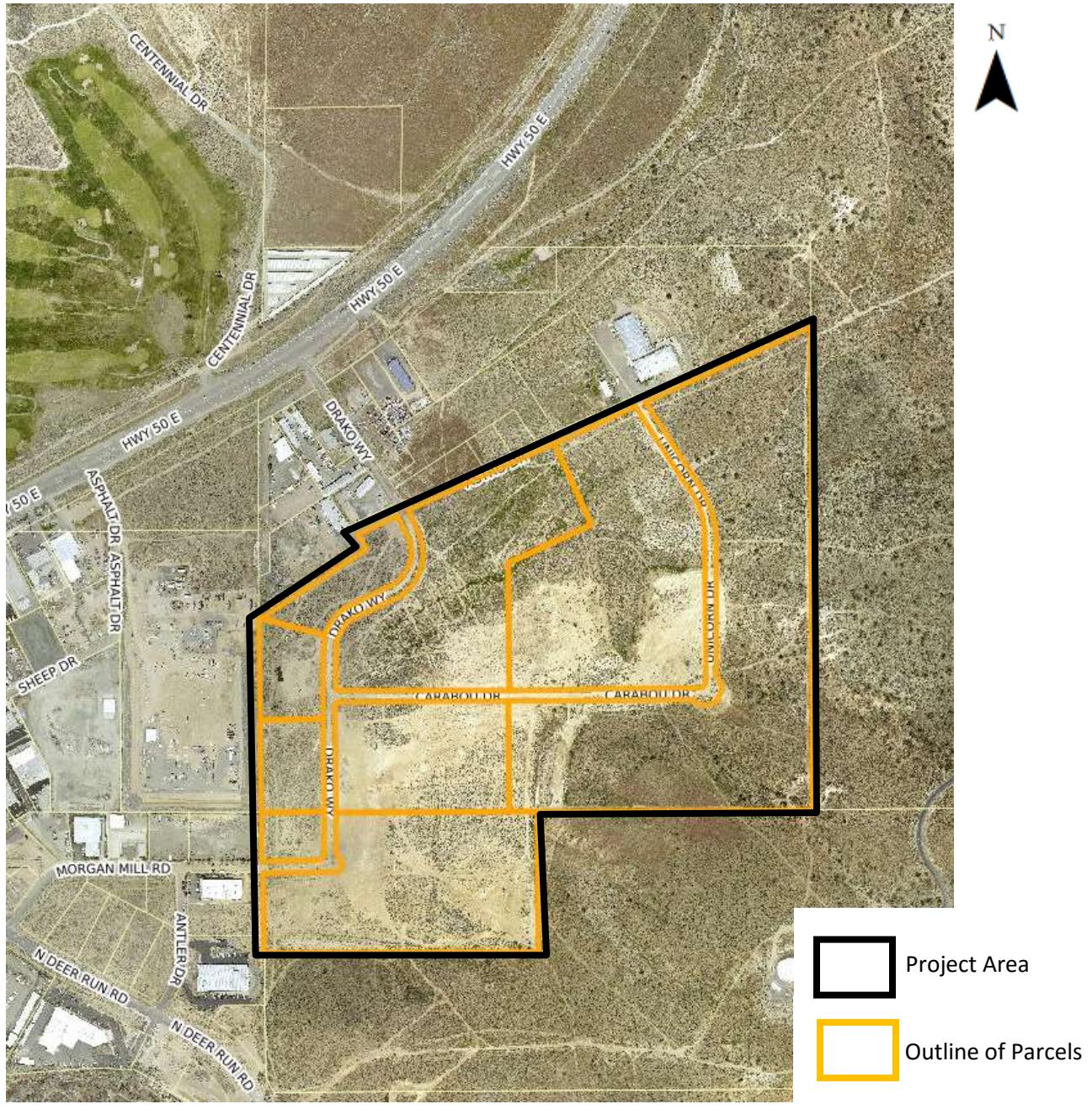
- Application & Supplemental Information
- Master Plan Policy Checklist
- Proposal Questionnaire
- Interim Mixed-Use Evaluation Criteria
- Tentative Map Plan Set
- Project Impact Reports
- Conceptual Drainage Study
- Conceptual Water Study
- Conceptual Sewer Study
- Traffic Study
- Geotechnical Report



PROJECT LOCATION

The project site encompasses 9 parcels (APNs 008-521-54, -55, -89, -90, 005-522-16, -17, -18, 008-531-59, -60) totaling +/- 112.69 acres; the total project area is 119.1 acres because it includes the existing rights-of way of Drako Way, Carabou Drive, and Unicorn Drive. The site is located southeast of US Highway 50 and northeast of Deer Run Road, within the V&T Specific Plan Area. The project site is accessed by Drako Way and Morgan Mill Road.

Figure 1: Project Location



EXISTING CONDITIONS

The +/- 119.1 acre project area is undeveloped and is the site of the Old Carson City Landfill. The site is surrounded by a mix of commercial and industrial uses to the north and west, and open space to the east and south.

Figure 2: Surrounding Property Designations

Direction	Current Zoning	Master Plan	Current Land Use
North	General Industrial	Mixed-Use Commercial	Mix of commercial and industrial uses
East	Public Regional	Open Space	Open Space
South	Public Regional	Public/Quasi-Public	Open Space
West	General Industrial	Public/Quasi-Public Industrial	Mix of commercial and industrial uses Public Facility

Conditions in the Previous Five-Year Time Period

Regional connectivity near the project area has increased in the previous five-year time period. US Highway 50 now connects to USA Parkway to the east (opened in September 2017), providing enhanced access to industrial development such as the Tahoe Reno Industrial Center (TRIC) and Tesla Gigafactory. US Highway 50 also continues to Lake Tahoe to the west and connects to Interstate 580, which leads to Reno to the north. This increase in nearby job opportunities and increased regional connectivity will continue to lead to increased demand for housing development in the region.

Additionally, the opening of US Highway 50 West and Interstate 580, approximately 8.4 miles southwest of the project, represents a significant change in Carson City and will encourage commercial development and job opportunities. The last leg of Interstate 580 opened in August 2017.

The site has been zoned industrial for many years but has remained vacant because there has not been market demand for industrial land. Instead, housing opportunities represent the highest and best use of the site. This is further demonstrated by the shift in the Master Plan designation from Industrial to Mixed-Use Residential. Also, as detailed in the Carson City Master Plan, a mix of residential use types are needed to supply the housing demand. This project has the opportunity to supply a mix of residential use types, along with adjacent commercial land uses to provide for residents' day-to-day needs, and enhanced pedestrian access to adjacent open space.



Figure 3: Site Photographs



Figure 3: Site Photographs (continued)



Figure 4: Existing Master Plan Designation

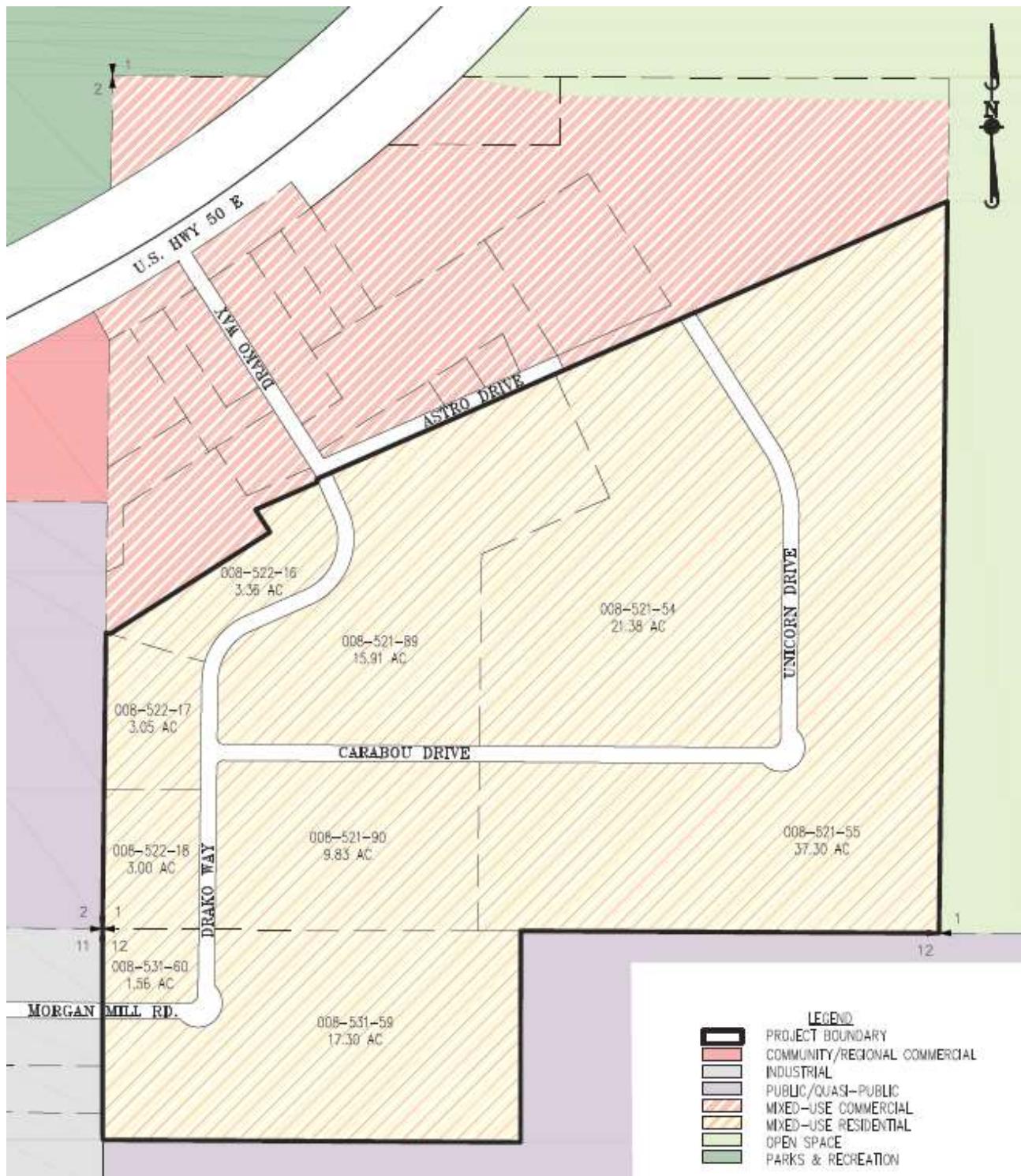
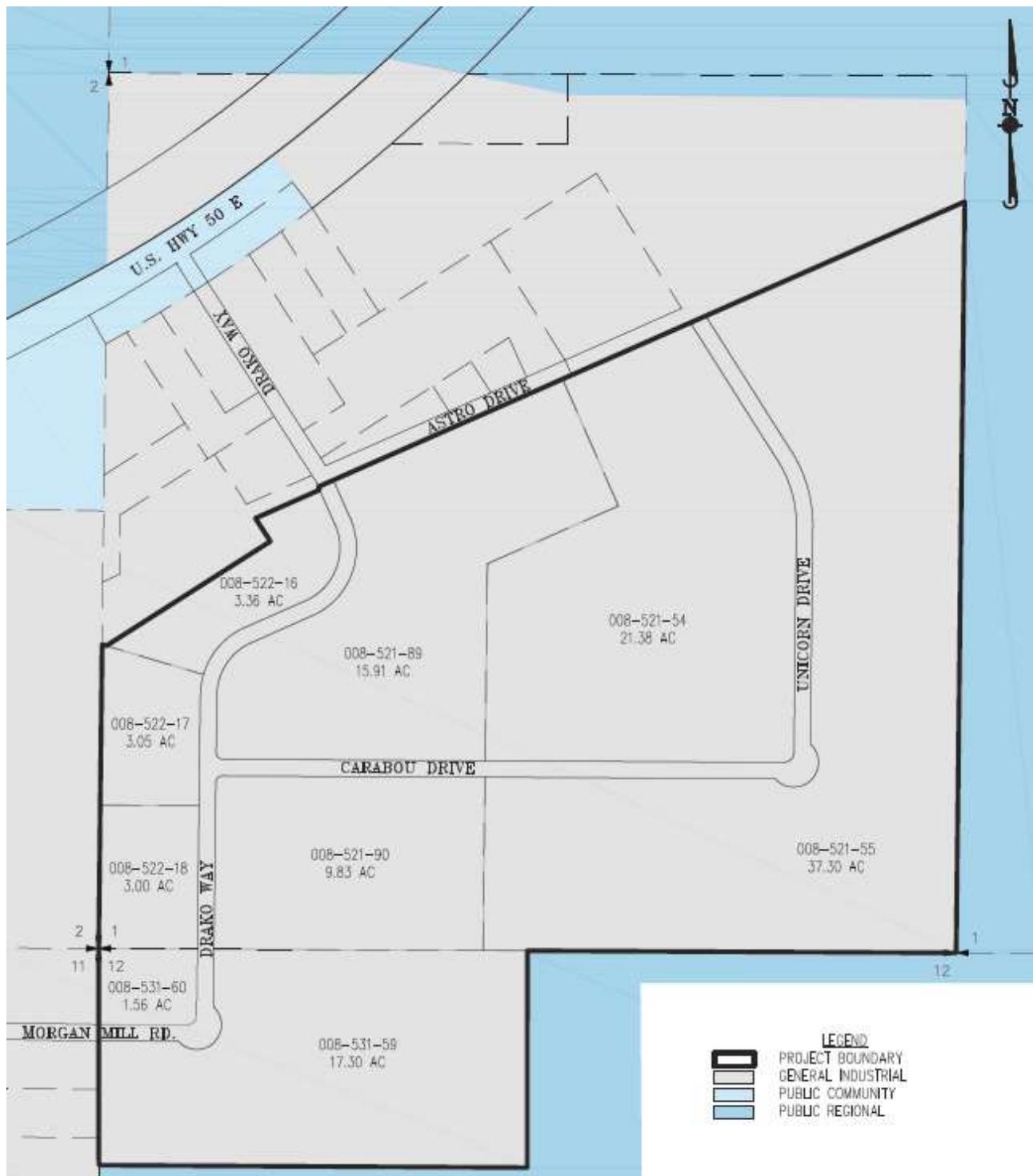


Figure 5: Existing Zoning Designation



APPLICATION REQUEST

The enclosed application is a request for:

ZONING MAP AMENDMENT from General Industrial to Single-family 6,000 (SF6, +/- 68.3 acres), Multifamily Apartment (MFA, +/- 18.0 acres), General Commercial (GC, +/- 13.9 acres), and Public Regional (PR, +/- 18.9 acres)

TENTATIVE SUBDIVISION MAP to create 270 single family residential lots, 9 common area parcels, 3 remainder parcels, and +/- 13.36 acres of right-of-way within a +/- 119.1 acre project area.

PROJECT DESCRIPTION AND JUSTIFICATION

The Plateau mixed-use development is proposed to include 270 single family residential parcels on 68.3 acres (SF6), 18.0 acres of MFA, 13.9 acres of GC, and 18.9 acres of PR use. The ultimate mixed-use development will be in compliance with the Carson City Municipal Code.

The proposed zoning designations of SF6, MFA, GC, and PR (see Figure 8: Proposed Zoning Designation) will allow for a mixed-use development in accordance with the Mixed-use Residential (MUR) Master Plan designation and meets the Interim Mixed-Use Evaluation Criteria. The development will ultimately provide a cohesive mix of housing types, expanded recreational opportunities, commercial services, and employment opportunities so that residents can meet their day-to-day needs within a close proximity.

The residential density is 3.95 units/acre (270 units/68.3 acres of residential development area). Single family residential lots range in size from 6,000 sq. ft. to 17,950 sq. ft. with an average lot size of 8,104 sq. ft. Home designs are not available, however, all future development will comply with the requirements of the Carson City Municipal Code.

The proposed development provides for enhanced recreational opportunity, with +/- 18.9 acres proposed to be designated PR and developed with recreational trails. Additional pedestrian access will be provided from the proposed development to the adjacent Carson City open space through Common Area parcels A through I, as shown on the Tentative Map, and between the different uses within the site.

Wildland fire access will be provided from the southeast corner of the development, along a 20' wide fire access road. The access point will be gated and will be available for fire access in the event of an emergency.

The Common Area parcels are proposed to be maintained by a Landscape Maintenance District (LMD) or similar entity as approved by Carson City. The LMD or similar entity will provide for weed abatement, trail maintenance, and maintenance of landscaping installed in the common area and right-of-way. Carson City will not be responsible for maintaining the common areas.

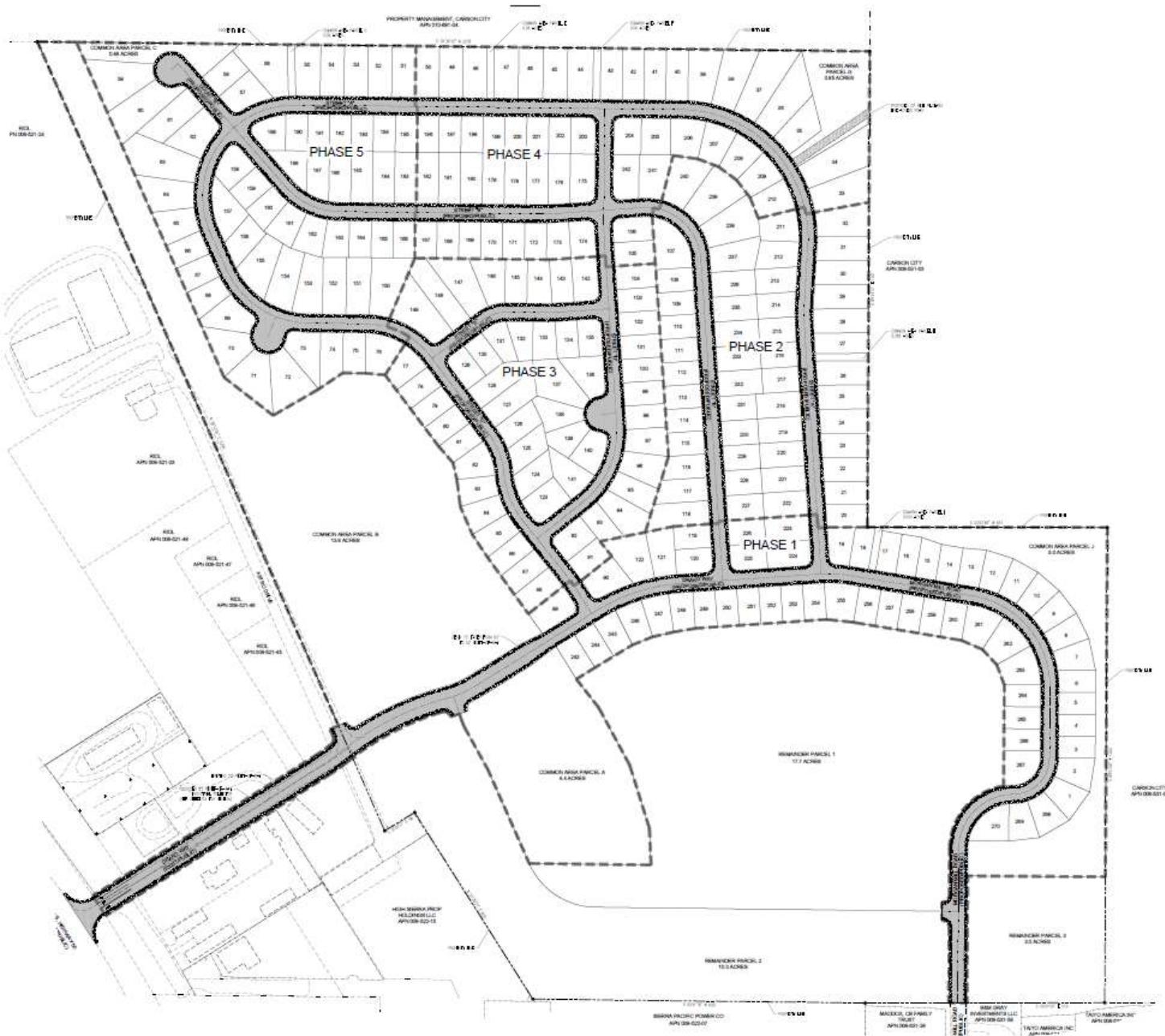


Figure 6: Project Summary

Project Summary	
Total Project Area	119.1 acres
- SF6 Proposed Acres	68.3 acres (270 units); 57%
- MFA Proposed Acres	18.0 acres; 15%
- GC Proposed Acres	13.9 acres; 12%
- PR Proposed Acres	18.9 acres; 16%
Residential Lot Area	50.69 acres
Remainder Parcels	31.0 acres (GC and MFA parcels)
Total Common Area	22.98 acres (PR and common area parcels)
Right-of-Way Area	14.36 acres (not including off-site access road)
Total Number of Residential Lots	270
Smallest Lot	6,000 sq. ft.
Largest Lot	17,950 sq. ft.
Average Lot Size	8,104 sq. ft.
Overall Gross Density	3.95 (270 units/68.3 acres)



Figure 7: Site Plan



PROPOSED ZONING DESIGNATION

This application proposes to amend the zoning designations from GI to a mix of SF6, MFA, GC, and PR to accomplish a mixed-use development in accordance with the MUR Master Plan designation and the proposed use described in the V&T SPA, which indicates that:

“the land use designation of the property in the vicinity of Drako Way, east of the V&T railroad alignment shall be changed by Carson City from Industrial to Mixed-Use Commercial and/or Mixed-Use Residential upon removal of the old landfill identified on the site or with approved engineering controls in accordance with NDEP standards upon development of the property (V&T SPA Policy 1.5).”

Consistency with the Carson City Master Plan and V&T Specific Plan

The Carson City Master Plan was adopted in 2006 and includes policies related to mixed-use land use categories. The mixed-use policies were established to:

- facilitate higher intensity, mixed-use development in locations designated on the Land Use Plan for mixed-use development;
- allow for the incorporation of a variety of housing as a part of a broader mix of uses;
- allow for projects to be designed with an interconnected network of streets between uses;
- promote a more compact, pedestrian-friendly environment; and
- incorporate recreational features.

The project area has a Mixed-Use Residential (MUR) Master Plan designation, however the existing GI zoning is not in conformance with the existing MUR land use designation. The proposed mix of SF6, MFA, GC, and PR is consistent with the MUR Master Plan designation and reflects the City's desire to establish a more diverse mix of uses within the community and to encourage a more efficient use of the City's limited developable land by encouraging the development of commercial services, employment opportunities, a diversity of housing, and an array of services within a close proximity (General Mixed-Use goal, Carson City Master Plan, Chapter 3, page 3-31).

The proposed zoning for a mixed-use development accomplishes the V&T SPA goals:

- To provide for a cohesive development within the area
- To encourage public/private cooperation in creating public access, trails, and recreational opportunities

The proposed zoning is consistent with the MUR Master Plan designation. Future development will meet the general Mixed-Use Policies and MUR policies contained in the General Plan, including density range, location and scale, mix of uses, mix of housing types, relationship to surrounding development, and parks, open space, and pathways.



Figure 8: Proposed Zoning Designation

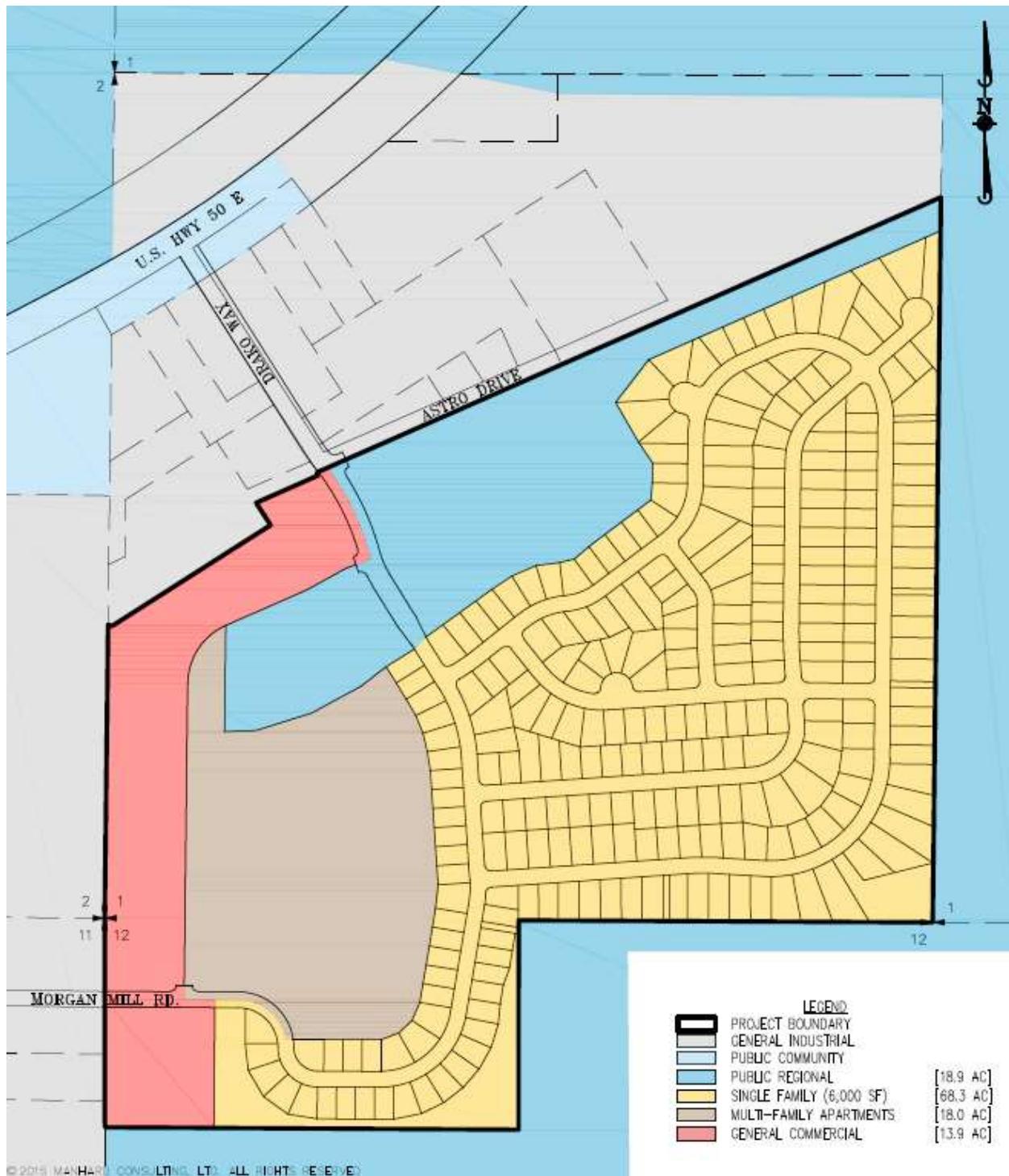


Figure 9: Existing and Proposed Zoning Acreage

ZONING CATEGORY	EXISTING ZONING (+/- ACRES)	PROPOSED ZONING (+/- ACRES)
General Industrial	119.1	0
Single-family 6,000	0	68.3
General Commercial	0	13.9
Multi-Family Apartment	0	18.0
Public Regional	0	18.9
TOTAL ACREAGE	119.1	119.1

TENTATIVE MAP REVIEW

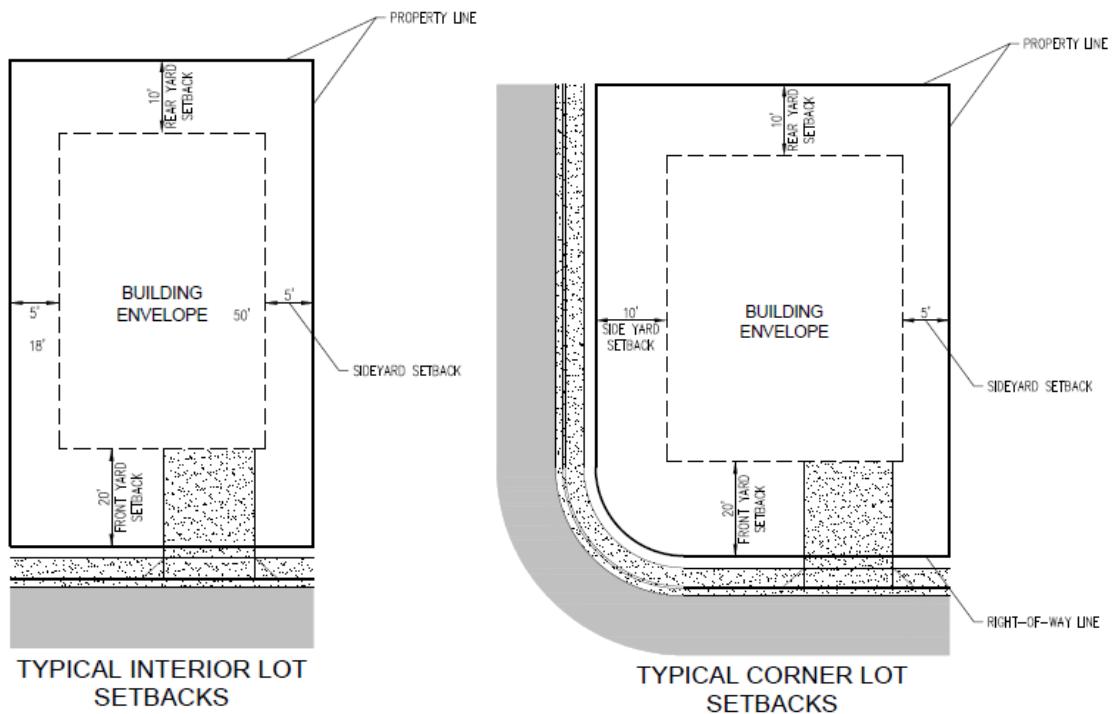
The Tentative Map includes 270 residential lots, totaling +/-50.68 acres. Three remainder parcels are included on the Tentative Map; one is proposed for multi-family development and zoned MFA (1 parcel = 17.7 acres) and two are proposed for general commercial development and zoned GC (2 parcels = 13.3 acres). There is no specific development associated with the remainder parcels. However, to analyze project impacts, proposed uses have been identified to include 250 multi-family residential units, 12,000 sq. ft. of office space, 12,000 sq. ft. of retail space, and 300 self-storage units. The remainder parcels will be developed in accordance with the Carson City Master Plan and Municipal Code.

Site Development Standards

The proposed residential lots are designed in accordance with SF6 site development standards, including parcel size, density, height, and setbacks, as detailed in CCMC Section 18.04.190. The minimum lot width is 60' and the maximum height is 26'. Setbacks are 20' front yard, 5' side yard, 10' street side yard, and 10' rear yard.



Figure 10: Typical Lot Setbacks



Off-street parking will be provided as follows in accordance with CCMC Division 2, Section 2.2:

- A minimum of two (2) off street parking spaces for each single family unit

Specific floorplans are not available at this time, however it is expected that each single family unit will have at least a two car garage and a driveway with two off-street parking spaces.

Figure 11: Parking Calculations

Zoning	# of Units	Spaces Required per Unit	Total Required Spaces	Total Spaces Proposed
SF6	270	2	540	Minimum: 540*

* This does not include any on-street parking or driveway, or any units that may contain a 3-car garage.

Hillside Development

As shown in Figure 10: Slope Map, the project site does not meet the requirements for hillside development, since the development site does not average 15% slope. The average slope of the site is 3.94%. Specific parcels that average 15% slope or more are identified on the Tentative Map plan set.

Figure 12: Slope Map



Vehicle and Pedestrian Access

The site is accessed by US Highway 50 with access from Drako Way and from N. Deer Run Road to Morgan Mill Road. Cross sections of a typical local street (50' ROW) and industrial street (65' ROW) are included below. All lots will be accessed by public streets.

Drako Way is the project entrance road and will be landscaped to provide an appealing entrance to the project. Landscaping will be maintained by a LMD or similar entity as approved by Carson City. The entrance road is off-site and the proposed 65' right-of-way and improvements will meet industrial street standards. As detailed on the cross section below, Drako Way will include 5' sidewalks on each side of the

road and bike lanes in accordance with Carson City standards. Drako Way will maintain the existing westerly right-of-way.

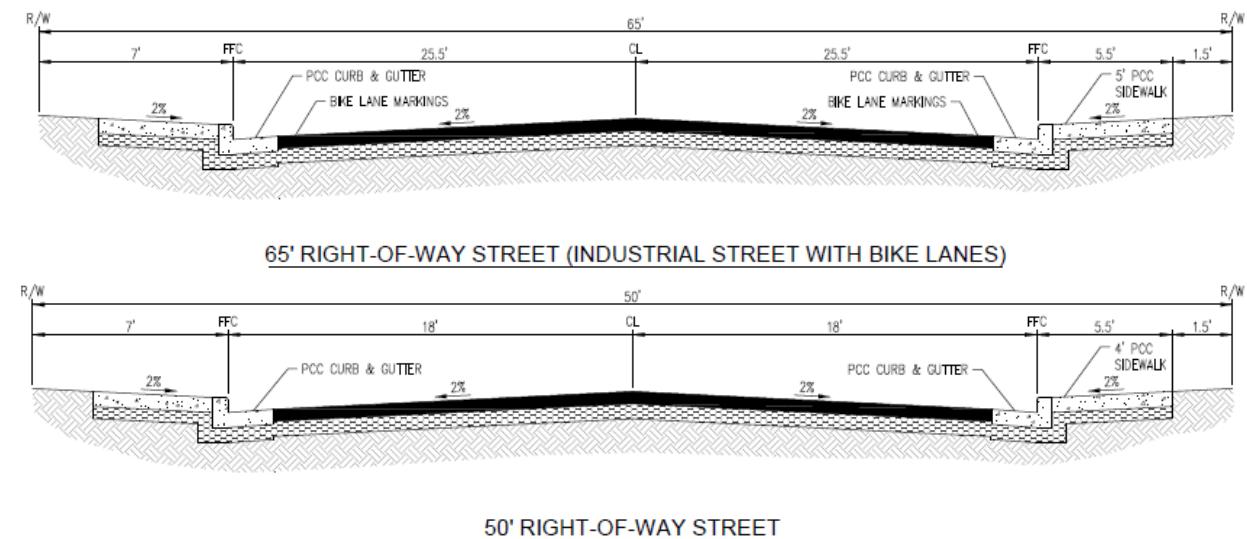
Internal project circulation will be provided by local streets (50' ROW). The proposed street layout is intended to replace the existing rights-of-way (Drako Way, Carabou Drive, Unicorn Drive). It appears that Drako Way, Carabou Drive, and Unicorn Drive were offered for dedication at some point but were not accepted. A Merger and Resubdivision will be offered with the Final Map, to eliminate the previously proposed ROW.

To provide for pedestrian access and connectivity, sidewalks will be provided throughout the development in accordance with the approved Tentative Map. There will be 4' wide sidewalks on both sides of the streets and a 5' wide sidewalk on both sides of Drako Way (project entrance). Sidewalks will be located within the ROW, providing safe pedestrian access throughout the development.

The street network has been designed to provide pedestrian connectivity between the proposed single family residential development and the commercial and multi-family zoned properties. Sidewalks, recreation trails, and open space will be easily accessible from all areas of the development.

The project has been designed to meet Wildland Urban Interface (WUI) standards to prevent wildfire spreading from vegetation to a building. Fire access is provided to the adjacent open space at the southeast corner of the project along a 20' fire access road.

Figure 13: Street Cross Sections



Traffic Improvements

A Traffic Impact Study (attached) has been prepared to evaluate the potential traffic impacts associated with the proposed development. A traffic signal at US Highway 50 and Drako Way is necessary to alleviate existing access management concerns. The intersection currently operates at Level of Service E during the PM peak hour. The existing volumes on US Highway 50 are high enough to effectively prohibit northbound left-turns from the project unless improvements are made. A signalized intersection would improve operations to acceptable levels of service (LOS A) during the AM and PM peak hours. Improvements will be addressed in coordination with the Nevada Department of Transportation (NDOT) and will meet the requirements of Carson City and NDOT. Other intersections, US Highway 50 and Deer Run Road and Deer Run Road and Morgan Mill Road, are expected to operate at acceptable levels of service with the project.

Phasing Plan

The project phasing plan includes 5 phases, as detailed below.

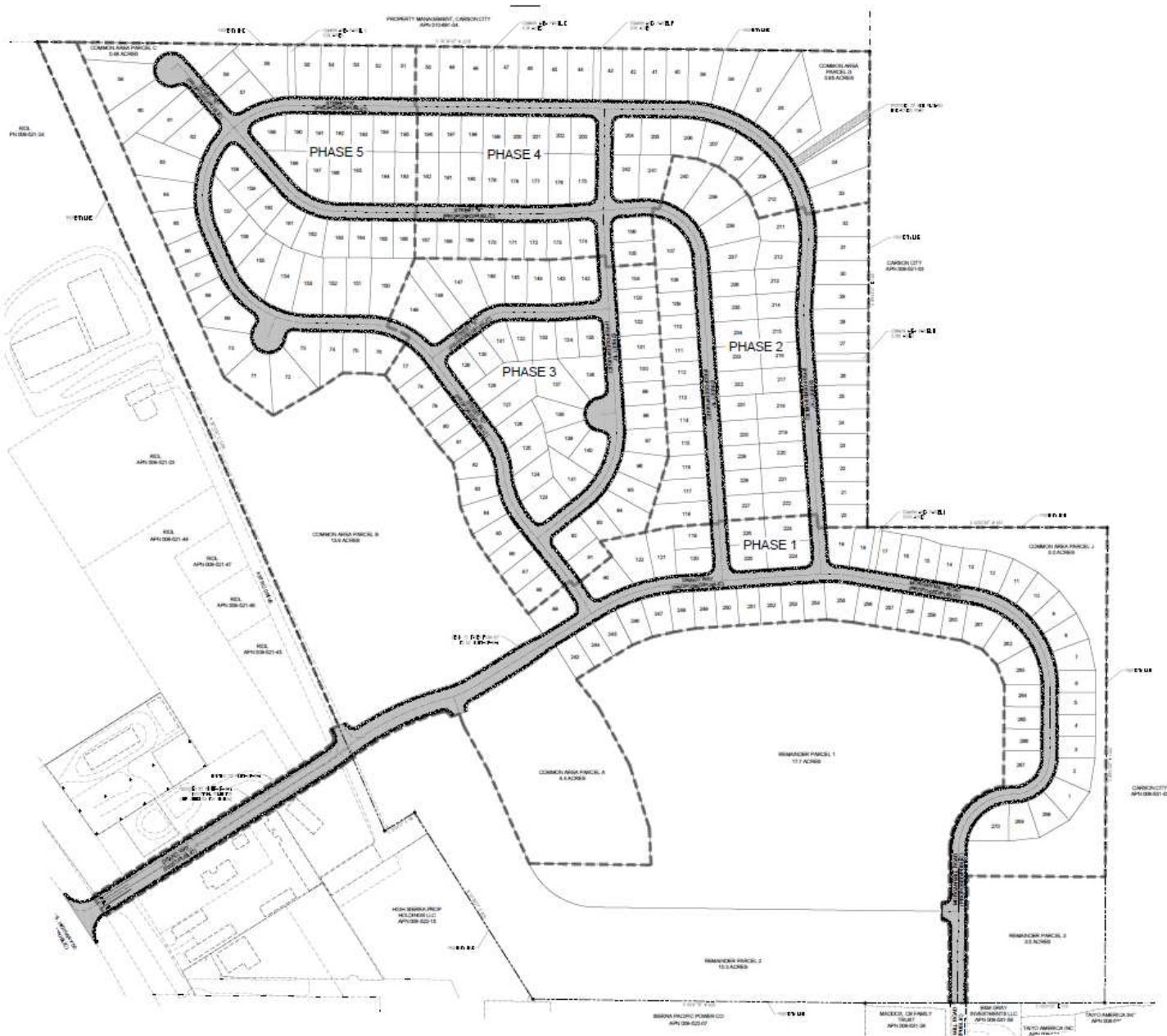
- Phase 1 will consist of +/- 57 SF6 residential lots, local streets as necessary, off-site infrastructure improvements, including Drako Way and Morgan Mill Road, as needed for the development, and other associated infrastructure improvements. Phase 1 will also include remediation of the Old Carson City Landfill (PR development area), and associated recreation improvements.
- Phase 2 will consist of +/- 51 SF6 residential lots, local streets as necessary, and associated infrastructure improvements.
- Phase 3 will consist of +/- 53 SF6 residential lots, local streets as necessary, and associated infrastructure improvements.
- Phase 4 will consist of +/- 53 SF6 residential lots, local streets as necessary, and associated infrastructure improvements.
- Phase 5 will consist of +/- 56 SF6 residential lots, local streets as necessary, and associated infrastructure improvements.

With approval of the Planning Department, the phasing plan may be modified to accommodate site or market conditions.

The phasing plan meets the Carson City Land Use requirements and NRS 278.360 regarding presentation of final maps. All final maps will be recorded in accordance with NRS 278.



Figure 14: Phasing Plan



Old Carson City Landfill

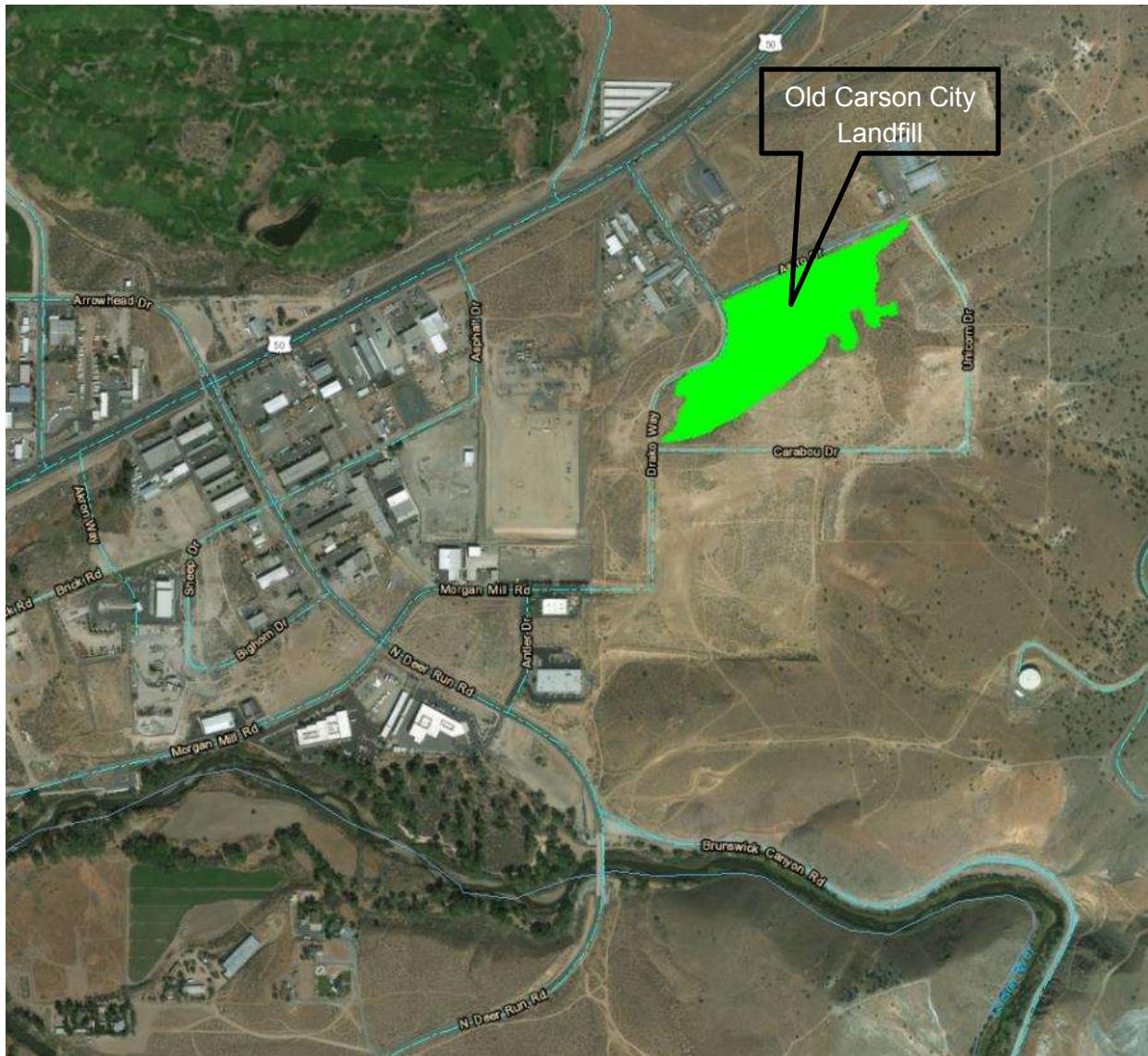
A portion of the site consists of what was once the Old Carson City Landfill, covering +/- 14.5 acres. The landfill was located between Drako Way and Unicorn Drive, extending approximately 800 feet south of Astro Drive. The landfill area is currently zoned GI and is encompassed within the proposed PR zoning. There is a fair amount of land disturbance from off highway vehicle use on the property site.

A remediation plan was submitted to the Nevada Division of Environmental Protection in November 2017 and subsequently approved. A draft Storm Water Management Plan (SWMP) was submitted to NDEP in

April 2018, which was deemed to meet NDEP's requirements. The Final SWMP will be submitted following Tentative Map approval. Remediation will consist of constructing a road within the landfill site, removing any exposed landfill waste and contaminated soil, and capping the entire extents of the landfill with a soil cap. After remediation, the area will be revegetated with native vegetation and recreational trails will be installed. These improvements are proposed to be included with Phase 1 as shown on Figure 14.

The proposed project will leave the old landfill site undisturbed, except for the proposed recreational trails and roadway, in accordance with the Draft SWMP.

Figure 15: Old Carson City Landfill General Location



PROJECT IMPACTS

Project impacts are based on a proposed layout that includes a mix of single family residential, multi-family residential, general commercial, and open space uses. Project impacts related to drainage, sanitary sewer, water, traffic, education, and public safety are detailed below.

Drainage

The subject site consists of 119.1 acres of land and has a Master Plan designation of Mixed-Use Residential and an existing zoning designation of General Industrial. To determine project impacts related to the Zoning Map Amendment, a conceptual land plan has been used that includes a mix of single family residential, multi-family residential, commercial, and common open space.

- 270 Single Family Residential lots on 68.6 acres
- 18.0 acres Multi-Family
- 13.9 acres General Commercial
- 22.98 acres of Common Open Space
 - 18.9 acres is zoned Public Regional for the remediated Old Carson City Landfill

The project is in eastern Carson City, south of U.S. Highway 50 in the area of Drako Way, located in Township 15 North, Range 20 East in portions of Sections 1 and 12. The site is not located in a FEMA flood zone. Drainage to, and through, the site is from a 262-acre catchment that is roughly bounded by Rifle Range Road to the east and Astro Drive to the north. Drainage flows westerly to and through the proposed SFR site to a location just south of the intersection of Morgan Mill Road and Drako Way. Downgradient drainage then continues ~1,000 feet to the Carson River near the intersection of North Deer Run Road and Brunswick Canyon Road. Existing conditions at the site include ~85 acres of previously mass graded site with slopes ranging from 2.5 to 4.5 percent and land cover consisting of bare earth with areas of sagebrush and grass understory in fair to good condition. There is a fair amount of land disturbance from off highway vehicle use on the property site. The subject site includes the Old Carson City Landfill (Facility ID # A-000050). The old landfill has been previously capped and NDEP has required that a stormwater management plan (SWMP) be developed for the old landfill site, which will be developed as parkland under the proposed conditions. A draft SWMP is currently on file with NDEP with a final SWMP due after acceptance of a tentative map.

Onsite and offsite undisturbed areas consist of sagebrush with grass understory in good condition with sparse Pinyon Pine-Juniper on the upper catchment areas. Slopes range from 5 to 20 percent in the upper offsite catchment. Offsite and onsite soils are classified as very high runoff potential with hydrologic soil group type D soils.

Any future development of the subject site will conform to Carson City Municipal Code for stormwater drainage and will incorporate the conditions of the SWMP for the old landfill site park. Increases in peak flow and runoff volume will be mitigated with detention basins designed to the 10-year storm event. In general, the conceptual mix of residential, multi-family commercial, and common open space will decrease the average impervious area from the current zoning for general industrial. The conceptual mix



of uses results in an estimated average impervious area percentage of 39 percent as opposed to the average impervious area percentage of 72 percent for a general industrial area, resulting in a decrease of 45 percent impervious area from the current zoning.

A Conceptual Drainage Report is included with this application.

Sanitary Sewer

Sanitary sewer infrastructure does not currently exist at the subject site. The nearest sanitary sewer is a 15-inch sewer main at the end of the Morgan Mill Road improvements that connects to the Morgan Mill sewer lift station. Sanitary sewer improvements for the Plateau project will conform to Carson City Municipal Code. The following table presents the sanitary sewage loading for the existing general industrial zoning and the conceptual uses of residential, multi-family, commercial, and common open space. Sewage loading is estimated based on the 2017 Sewer System Master Plan Update.

The proposed conditions include the following land uses that constitute the sewershed:

- 270 Single Family Residential lots on 68.3 acres
- 18.0 acres Multi-Family
- 13.9 acres General Commercial

A complete Sewer Report is included with this application.

Figure 16: Sewage Loading Estimates

Sewage Loading Estimates (gpd)				
Zoning	Existing		Proposed	
	Ave. Day	Peak Hour ¹	Ave. Day	Peak Hour ¹
General Industrial	21,298	31,948	N/A	N/A
Single-family (SF6)			39,812	59,718
Multi-Family (MFA)			30,790	46,125
General Commercial (GC)			6,029	9,044
Public Regional			0	0
Total	21,298	31,948	76,631	114,887

¹estimated for peaking factor of 1.5 per 2017 Sewer Master Plan Update

Water

Water infrastructure does not exist at the subject site. The nearest water line is a 12-inch PVC at the end of the Morgan Mill Road improvements that connects to a 12-inch PVC line in Antler Road in the 4880/Basin pressure zone. The project is shown as being in the 4880/Basin pressure zone. The East Valley pressure zone directly adjacent to the site. The *2010 Integrated Water Supply and Facility Plan* shows the subject site served from the 4880/Basin pressure zone with a looped 12-inch water main following the layout of Drako Way, Astro, Carabou, and Unicorn Drives and connecting to the existing 8-inch PVC at the intersection of Centennial Drive and Highway 50. It is anticipated that water infrastructure for the



conceptual conditions will mimic that layout. A conceptual water design indicates that a booster station will be required to serve domestic and fire flow to the Plateau Development from the 4880/Basin pressure zone. If a booster station is required, it is expected to be located within the single family portion of the project area, on one of the SF6 lots.

Water improvements for the subject site will conform to Carson City Municipal Code and NAC 445A.65505 through .6731. The below table summarizes the water demand estimate for the existing and conceptual uses. It is anticipated that demands will increase with a change from industrial to a residential/commercial mix.

A complete Water Report is included with this application.

Figure 17: Water Demand Estimates

Water Demand Estimates						
ZONING	Existing			Proposed		
	ADD Ac-ft/yr	ADD (gpd)	PDD ¹ (gpd)	ADD Ac-ft/yr	ADD (gpd)	MDD ¹ (gpd)
General Industrial	119	106,326	206,236			
Single-family Residential 6,000				161	144,089	295,382
Apartments				75	66,956	137,259
Commercial				14	12,150	24,908
Park/Open Space				0	0	0
Total	119	106,326	206,236	250	223,195	457,549

¹ estimated for peaking factor of 2.05 Average Daily Demand (ADD) : Maximum Daily Demand (MDD)

Traffic

The Traffic Impact Study shows that the project is anticipated to generate 5,002 daily trips, including 344 AM peak hour trips and 473 PM peak hour trips. The following table analyzes the potential traffic impact if the site was built out with the existing General Industrial zoning designation to the proposed SF6/MFA/GC zoning configuration. The Trip Generation shows a 14.2% decrease in trips from 5,833 to 5,002 average daily trips. Trip Generation is based on the 10th Edition Institute of Transportation Engineers Trip Generation Manual.

A complete Traffic Impact Report is included with this application.



Figure 18: Trip Generation Estimates

Land Use	Units	Daily Trip Gen. Rate	Total Daily Trips	AM Trip Gen. Rate	AM Peak Hour	PM Trip Gen. Rate	PM Peak Hour
EXISTING LAND USE							
General Industrial 110	Light 112.61 acres	51.80/ac.	5,833	-	-	-	-
CONCEPTUAL LAND USES							
Single Family Housing 210	270	9.44/du	2,549	.74/du	200	.99/du	267
Multi-Family Housing 220	250	7.32/du	1,830	.46/du	115	.56/du	140
General Office Building 710	12,000	9.74/ksf	116	1.16/ksf	14	1.15/ksf	14
Shopping Center 820	12,000	37.75/ksf	453	.94/ksf	11	3.81/ksf	46
Mini-Warehouse 151	300	17.96/100 units	54	1.39/100 units	4	1.95/100 units	6
TOTAL			5,002		344		473

Educational Services

Carson City School District provides educational services for Carson City. The current zoned schools for the project area are Fremont Elementary School, Eagle Valley Middle School, and Carson High School. An expansion is currently underway at Fremont Elementary School to accommodate an increase in student population.

Based on the addition of 520 single family and multi-family dwelling units, it is expected that ultimate development of the project will add 145 elementary students (.279 per unit), 28 middle school students (.054 per unit), and 67 high school students (.129 per unit). A \$15 million capital improvement school bond was recently passed to replace portable classrooms with permanent brick and mortar classrooms and to expand capacity. Carson City School District will also receive additional tax revenue from real property taxes and per student as the project area develops.

Public Safety

The Carson City Sheriff's Office currently provides public safety services to this area and will continue to provide services. The Sheriff's overall average response time City-wide is 4.34 minutes (December 2017). The closest fire station to the project site is located at 2400 East College Parkway (Station 52), approximately 3.3 miles west of the project site, and has a +/-6 minute response time. The project will be required to provide adequate means of access for emergency vehicles to serve the site and adequate circulation within the site. It is expected that the proposed amendment to SF6, MFA, GC and PF, adding 520 dwelling units, will have a greater impact to public safety than development of the site under the

existing GI zoning. Carson City will receive additional revenue (from property taxes, licenses and permit, intergovernmental, charges for services, fines and forfeits, and miscellaneous, etc.) as the project area develops to fund public safety.

Flood Zone

The project area is not located in a FEMA flood zone. Relevant FEMA flood maps define the area as outside the 0.2% annual chance of flood (Panel 32031C3475G).

Compatibility with Adjacent Land Uses

The proposed Zoning Map Amendment to SF6, MFA, GC, and PR promotes the desired pattern for mixed-use development located in the V&T Specific Plan Area.

The proposed development has been designed to be a cohesive development, so that adjacent land uses are compatible, both internally and externally. There is an existing mix of commercial and industrial uses north of the project site and west of the project site. There is vast open space to the south and west of the project area. Internally, uses have been integrated so that residents have the ability to meet many of their day-to-day needs within close proximity of their home.

Commercial uses are planned to be adjacent to the project boundaries where there are existing commercial and industrial uses so that potential conflicts with residential uses, such as visual and noise impacts, are minimized. Multi-family development is planned to be a transition area between the commercial and single family uses. The single family residential lots are adjacent to the open space, with pedestrian connections to the surrounding area.

To further ensure compatibility, standards established in the Carson City Municipal Code will be applied to single family residential, multi-family residential, and general commercial development. Future development will be designed in accordance with Carson City requirements and the Mixed-Use criterial and evaluation factors required by Carson City and will allow for more efficient development and provide for the least amount of natural resource impairment.

MASTER PLAN POLICY CHECKLIST

The purpose of the Master Plan Policy Checklist is to provide a list of answers that address whether a development proposal is in conformance with the goals and objectives of the 2006 Carson City Master Plan that are related to this project. The Master Plan Policy Checklist provided with the application is also attached separately. This project complies with the Master Plan and accomplishes the following objectives:

Chapter 3: A Balanced Land Use Pattern

1. The proposed development is located within an area that is served by community water and wastewater facilities, however, water infrastructure does not exist at the subject site. The nearest water line is a



12-inch PVC at the end of the Morgan Mill Road improvements that connects to a 12-inch PVC line in Antler Road in the 4880/Basin pressure zone. Water improvements for the subject site will conform to Carson City Municipal Code and NAC 445A.65505 through .6731. (1.1b)

- 2. The builder, where feasible, will encourage the use of sustainable building materials and construction techniques to promote energy efficient, sustainable buildings. (1.1e)
- 3. The project site is not located near Downtown. (1.2a)
- 4. The proposed development maintains existing access to surrounding public lands from Astro Drive and Rifle Range Road, and provides enhanced pedestrian access from within the development. (1.4a)
- 5. The proposed development has been designed to minimize disturbances to existing site features by providing approximately 18.9 acres of undisturbed open space. (1.4c)
- 6. The project site is not adjacent to county boundaries (1.5a)
- 7. The project site is not adjacent to State or Federal lands. (1.5b)
- 8. The project area can be adequately served by city services including fire and sheriff services, the school district, Sierra Pacific Power and Southwest Gas. (1.5d)
- 9. The proposed single-family development, and zoning designations for multi-family and commercial development within the project promote a range of mixed-use, residential, commercial and employment uses at a variety of scales and intensities. (2.1a)
- 10. The proposed MUR Master Plan designation will promote mixed-use development patterns as appropriate for the surrounding context consistent with the land use descriptions of the applicable Mixed-Use designation, and meet the intent of the Mixed-Use Evaluation Criteria. (2.1b, 2.2b, 2.3b, Land Use Districts)
- 11. The proposed development is located within the Virginia & Truckee Railroad Gateway Specific Plan Area. (2.1c)
- 12. The proposed ZMA includes appropriate zoning designations so that there are not incompatible uses. Commercial is adjacent to the existing industrial uses, multi-family is adjacent to commercial and single family is adjacent to multi-family and open space. Friction zones are not created. (2.1d)
- 13. The proposed development encourages a mix of housing densities by providing a variety of lot sizes throughout the project and both single family and multi-family housing opportunities. (2.2a)
- 14. The builder, where feasible, will encourage energy conservation and minimize the impacts of light pollution within the urban interface. (3.2b)
- 15. Development will be consistent with the policies contained in the V&T Railroad Gateway Specific Plan chapter of the Carson City Master Plan. (3.2e)
- 16. The proposed development is designed to minimize the impacts of potential natural disasters by providing multiple access points, including a tertiary emergency vehicle only gated access at the north easterly corner of the project. Homes and outbuildings will be constructed to Carson City Development Code. (3.3b)
- 17. The proposed development is not within the 100-year floodplain or other hazardous areas and is away from geologic hazards areas. (3.3d, e)
- 18. Does not create land use conflicts; the proposed MUR designation is anticipated in the V&T SPA and is adjacent to the MUC designation and open space. (Land Use descriptions)
- 19. The proposed MUR designation is located within the V&T SPA and implements the applicable policies of that SPA. (Land Use Map, Chapter 8).



Chapter 4: Equitable Distribution of Recreational Opportunities

1. The proposed MUR designation allows for the expansion of park and recreation opportunities. (4.2a)
2. Any future development will be consistent with the Open Space Master Plan and Carson River Master Plan. (4.3a)

Chapter 5: Economic Vitality

1. The proposed zoning will help maintain and enhance the primary job base. (5.1)
2. The proposed project provides 13.9 acres of land zoned for General Commercial development. (5.1i)
3. The proposed development provides single family housing models with designated space set aside for multi-family housing to cater to different populations within the City. (5.1j)
4. The project site is not in an area that would be used as a regional retail center. (5.2a)
5. The site is undeveloped so the there is no opportunity to reuse or redevelop underused retail spaces. (5.2b)
6. It is not expected that the proposed zoning designation will support heritage tourism activities, particularly those associated with historic resources, cultural institutions and the State Capitol. (5.4a)
7. The proposed project encourages the protection of natural resources and environmental quality by providing approximately 18.9 acres of undisturbed open space. (5.5f)

Chapter 6: Livable Neighborhoods and Activity Centers

1. The builder, where feasible, will utilize durable, long-lasting building materials. 6.1a)
2. The proposed project aims to promote variety and visual interest in its design through the incorporation of well-articulated building facades, clearly defined entrances and pedestrian connections, landscaping, and other features as consistent with the City's Development Standards. (6.1c)
3. The proposed project will provide appropriate height, density, and setback transitions and connectivity to surrounding development to ensure compatibility with surrounding development for infill projects in accordance with the Carson City Municipal Code. (6.2a, 9.3b, 9.4a)
4. The project is not spot zoned. The proposed zoning designations are compatible with the MUR Master Plan designation and adjacent uses and existing development (9.4b)

Chapter 7: A Connected City

1. The proposed project will promote transit-supportive development patterns (e.g. mixed-use, pedestrian-oriented, higher density), however the project site is not along a major travel corridor to facilitate future transit. (11.2b)
2. It is not expected that the proposed project will promote enhanced roadway connections and networks consistent with the Transportation Master Plan as it is in an area with existing circulation. (11.2c)
3. The proposed project provides for appropriate pathways through the development and to surrounding public lands, consistent with the Unified Pathways Master Plan and the proposed use and density. (12.1a,c)

Chapter 8: Specific Plan Areas

1. The proposed project will be developed in accordance with the V&T-SPA design standards, in accordance with the Carson City Master Plan. (1.1)



2. The proposed ZMA aims to rezone a 13.9 acre area to General Commercial. (1.2)
3. The project site is within the V&T SPA and implements policy V&T SPA-1.5, "The land use designation of the property in the vicinity of Drako Way, east of the V&T railroad alignment, shall be changed by Carson City from Industrial to Mixed-Use Commercial and/or Mixed-Use Residential upon removal of the old landfill identified on the site or with approved engineering controls in accordance with NDEP standards upon development of the property." The NDEP approval letter is attached that includes approved engineering controls for development of the property. (1.5)
4. The proposed development encourages use of trail facilities in the area by providing multiple pedestrian access points from the single-family portion of the project to the public land on the south and east borders of the project. (2.1)

TENTATIVE SUBDIVISION MAP FINDINGS

In accordance with Carson City Municipal Code Section 17.07.005, this project has been designed to consider the following:

- 1. Environmental and health laws and regulations concerning water and air pollution, the disposal of solid waste, facilities to supply water, community or public sewage disposal and, where applicable, individual systems for sewage disposal.**

All environmental health laws and regulations regarding water, air pollution, and waste disposal are incorporated into the proposed project.

- 2. The availability of water which meets applicable health standards and is sufficient in quantity for the reasonably foreseeable needs of the subdivision.**

Water is available to the site, with infrastructure improvements. It will be provided by Carson City and conform to the applicable health standards and fulfill quantity requirements for residences.

- 3. The availability and accessibility of utilities.**

Public utilities are currently available to serve the proposed project. Complete water and sewer reports are included with the application that detail existing and proposed service and improvements.

- 4. The availability and accessibility of public services such as schools, police protection, transportation, recreation and parks.**

Carson City School District provides educational services for Carson City. The current zoned schools for the project area are Fremont Elementary School, Eagle Valley Middle School, and Carson High School. An expansion is currently underway at Fremont Elementary School to accommodate an increase in student population.

Based on the addition of 520 single family and multi-family dwelling units, it is expected that ultimate development of the project will add 145 elementary students (.279 per unit), 28 middle school students (.054 per unit), and 67 high school students (.129 per unit). A \$15 million capital improvement school bond was recently passed to replace portable classrooms with permanent



brick and mortar classrooms and to expand capacity. Carson City School District will also receive additional tax revenue from real property taxes and per student as the project area develops.

The Carson City Sheriff's Office currently provides public safety services to this area and will continue to provide services. The Sheriff's overall average response time City-wide is 4.34 minutes (December 2017). The closest fire station to the project site is located at 2400 East College Parkway (Station 52), approximately 3.3 miles west of the project site, and has a +/-6 minute response time. The project will be required to provide adequate means of access for emergency vehicles to serve the site and adequate circulation within the site. It is expected that the proposed amendment to SF6, MFA, GC and PF, adding 520 dwelling units, will have a greater impact to public safety than development of the site under the existing GI zoning. Carson City will receive additional revenue (from property taxes, licenses and permit, intergovernmental, charges for services, fines and forfeits, and miscellaneous, etc.) as the project area develops to fund public safety.

The Regional Transportation Commission is responsible for transportation in and around the project area.

Carson City Parks Department will provide recreational and parks services. Enhanced recreational opportunities are provided with this project through the addition of trails and access to adjacent public land.

5. Access to public lands. Any proposed subdivision that is adjacent to public lands shall incorporate public access to those lands or provide an acceptable alternative.

The project site is adjacent to public lands on the south and east. Pedestrian access has been incorporated at multiple locations throughout the project site.

6. Conformity with the zoning ordinance and land use element of the city's master plan.

The proposed project is in conformance with the MUR Master Plan designation and the Interim Mixed-Use Evaluation Criteria and has been designed to be in conformance with the proposed zoning designations of SF6, MFA, GC, and PR.

7. General conformity with the city's master plan for streets and highways.

The proposed project is in conformance with the Carson City streets and highways master plan. In addition the project is providing off-site improvements at Drako Way.

8. The effect of the proposed subdivision on existing public streets and the need for new streets or highways to serve the subdivision.



A Traffic Impact Study (attached) has been prepared to evaluate the potential traffic impacts associated with the proposed development. A traffic signal at US Highway 50 and Drako Way is necessary to alleviate existing access management concerns. The intersection currently operates at Level of Service E during the PM peak hour. The existing volumes on US Highway 50 are high enough to effectively prohibit northbound left-turns from the project unless improvements are made. A signalized intersection would improve operations to acceptable levels of service (LOS A) during the AM and PM peak hours. Improvements will be addressed in coordination with the Nevada Department of Transportation (NDOT) and will meet the requirements of Carson City and NDOT. Other intersections, US Highway 50 and Deer Run Road and Deer Run Road and Morgan Mill Road, are expected to operate at acceptable levels of service with the project.

9. The physical characteristics of the land such as flood plains, earthquake faults, slope and soil.

The site does not trigger hillside requirements (3.94% average slope). The parcel is designated by FEMA as Zone X, Area of Minimal Flood Hazard. The site has been designed to accommodate peak flow events. A complete geotechnical investigation is also included as part of this request.

10. The recommendations and comments of those entities reviewing the subdivision request pursuant to NRS 278.330 thru 278.348, inclusive.

All recommendations and comments provided during the review of this project will be incorporated where applicable.

11. The availability and accessibility of fire protection including, but not limited to, the availability and accessibility of water and services for the prevention and containment of fires including fires in wild lands.

The availability and accessibility of fire protection to the proposed residential units will be in compliance with Carson City Fire Department recommendations.

12. Recreation and trail easements.

Trails are provided throughout the Old Carson City Landfill property and will be maintained by a LMD or similar entity as approved by Carson City.



ZONING MAP AMENDMENT FINDINGS

In accordance with Carson City Municipal Code Section 18.02.070(10), this project has been designed to meet the following findings:

- a. Before a zoning map amendment map be recommended for approval, the applicant shall provide evidence to the commission and board concerning the physical use of land and zoning currently existing in the general vicinity, and which have occurred in the previous five (5) year time period and describe:**
 - 1. How the proposal will impact the immediate vicinity;**

The proposed Zoning Map Amendment will allow the project area to be in conformance with the MUR Master Plan designation and the V&T Specific Plan, by providing for a mixed-use project that includes SF6, MFA, GC, and PR. In comparison to the existing General Industrial zoning, there will be greater water and sewer impact and impact to the existing roadway. As further described in the project description, improvements are incorporated into the design to minimize impact.

- 2. How the proposal supports the goals, objectives, and recommendations of the master plan concerning land use and related policies for the neighborhood where the subject project is situated;**

As demonstrated in the Master Plan Policy Checklist that is included with this application package, the proposed amendment is in substantial compliance with the following goals, policies, and action programs of the Master Plan:

Chapter 3: A Balanced Land Use Pattern

1. The proposed development is located within an area that is served by community water and wastewater facilities, however, water infrastructure does not exist at the subject site. The nearest water line is a 12-inch PVC at the end of the Morgan Mill Road improvements that connects to a 12-inch PVC line in Antler Road in the 4880/Basin pressure zone. Water improvements for the subject site will conform to Carson City Municipal Code and NAC 445A.65505 through .6731. (1.1b)
2. The builder, where feasible, will encourage the use of sustainable building materials and construction techniques to promote energy efficient, sustainable buildings. (1.1e)
3. The project site is not located near Downtown. (1.2a)
4. The proposed development maintains existing access to surrounding public lands from Astro Drive and Rifle Range Road, and provides enhanced pedestrian access from within the development. (1.4a)
5. The proposed development has been designed to minimize disturbances to existing site features by providing approximately 18.9 acres of undisturbed open space. (1.4c)
6. The project site is not adjacent to county boundaries (1.5a)
7. The project site is not adjacent to State or Federal lands. (1.5b)
8. The project area can be adequately served by city services including fire and sheriff services, the school district, Sierra Pacific Power and Southwest Gas. (1.5d)



9. The proposed single-family development, and zoning designations for multi-family and commercial development within the project promote a range of mixed-use, residential, commercial and employment uses at a variety of scales and intensities. (2.1a)
10. The proposed MUR Master Plan designation will promote mixed-use development patterns as appropriate for the surrounding context consistent with the land use descriptions of the applicable Mixed-Use designation, and meet the intent of the Mixed-Use Evaluation Criteria. (2.1b, 2.2b, 2.3b, Land Use Districts)
11. The proposed development is located within the Virginia & Truckee Railroad Gateway Specific Plan Area. (2.1c)
12. The proposed ZMA includes appropriate zoning designations so that there are not incompatible uses. Commercial is adjacent to the existing industrial uses, multi-family is adjacent to commercial and single family is adjacent to multi-family and open space. Friction zones are not created. (2.1d)
13. The proposed development encourages a mix of housing densities by providing a variety of lot sizes throughout the project and both single family and multi-family housing opportunities. (2.2a)
14. The builder, where feasible, will encourage energy conservation and minimize the impacts of light pollution within the urban interface. (3.2b)
15. Development will be consistent with the policies contained in the V&T Railroad Gateway Specific Plan chapter of the Carson City Master Plan. (3.2e)
16. The proposed development is designed to minimize the impacts of potential natural disasters by providing multiple access points, including a tertiary emergency vehicle only gated access at the north easterly corner of the project. Homes and outbuildings will be constructed to Carson City Development Code. (3.3b)
17. The proposed development is not within the 100-year floodplain or other hazardous areas and is away from geologic hazards areas. (3.3d, e)
18. Does not create land use conflicts; the proposed MUR designation is anticipated in the V&T SPA and is adjacent to the MUC designation and open space. (Land Use descriptions)
19. The proposed MUR designation is located within the V&T SPA and implements the applicable policies of that SPA. (Land Use Map, Chapter 8).

Chapter 4: Equitable Distribution of Recreational Opportunities

1. The proposed MUR designation allows for the expansion of park and recreation opportunities. (4.2a)
2. Any future development will be consistent with the Open Space Master Plan and Carson River Master Plan. (4.3a)

Chapter 5: Economic Vitality

1. The proposed zoning will help maintain and enhance the primary job base. (5.1)
2. The proposed project provides 13.9 acres of land zoned for General Commercial development. (5.1i)
3. The proposed development provides single family housing models with designated space set aside for multi-family housing to cater to different populations within the City. (5.1j)
4. The project site is not in an area that would be used as a regional retail center. (5.2a)
5. The site is undeveloped so the there is no opportunity to reuse or redevelop underused retail spaces. (5.2b)
6. It is not expected that the proposed zoning designation will support heritage tourism activities,



particularly those associated with historic resources, cultural institutions and the State Capitol. (5.4a)

7. The proposed project encourages the protection of natural resources and environmental quality by providing approximately 18.9 acres of undisturbed open space. (5.5f)

Chapter 6: Livable Neighborhoods and Activity Centers

1. The builder, where feasible, will utilize durable, long-lasting building materials. 6.1a)
2. The proposed project aims to promote variety and visual interest in its design through the incorporation of well-articulated building facades, clearly defined entrances and pedestrian connections, landscaping, and other features as consistent with the City's Development Standards. (6.1c)
3. The proposed project will provide appropriate height, density, and setback transitions and connectivity to surrounding development to ensure compatibility with surrounding development for infill projects in accordance with the Carson City Municipal Code. (6.2a, 9.3b, 9.4a)
4. The project is not spot zoned. The proposed zoning designations are compatible with the MUR Master Plan designation and adjacent uses and existing development (9.4b)

Chapter 7: A Connected City

1. The proposed project will promote transit-supportive development patterns (e.g. mixed-use, pedestrian-oriented, higher density), however the project site is not along a major travel corridor to facilitate future transit. (11.2b)
2. It is not expected that the proposed project will promote enhanced roadway connections and networks consistent with the Transportation Master Plan as it is in an area with existing circulation. (11.2c)
3. The proposed project provides for appropriate pathways through the development and to surrounding public lands, consistent with the Unified Pathways Master Plan and the proposed use and density. (12.1a,c)

Chapter 8: Specific Plan Areas

1. The proposed project will be developed in accordance with the V&T-SPA design standards, in accordance with the Carson City Master Plan. (1.1)
2. The proposed ZMA aims to rezone a 13.9 acre area to General Commercial. (1.2)
3. The project site is within the V&T SPA and implements policy V&T SPA-1.5, "The land use designation of the property in the vicinity of Drako Way, east of the V&T railroad alignment, shall be changed by Carson City from Industrial to Mixed-Use Commercial and/or Mixed-Use Residential upon removal of the old landfill identified on the site or with approved engineering controls in accordance with NDEP standards upon development of the property." The NDEP approval letter is attached that includes approved engineering controls for development of the property. (1.5)
4. The proposed development encourages use of trail facilities in the area by providing multiple pedestrian access points from the single-family portion of the project to the public land on the south and east borders of the project. (2.1)

3. If the proposed amendment will impact properties within that use districts;



The proposed amendment will not impact any other properties zoned SF6, MFA, GC, or PR. This amendment will only amend the zoning map for the project area (9 parcels) included in this application.

4. Any impacts on public services and facilities.

Complete water, sewer, and hydrology reports are included with this application that detail impacts on public services and proposed improvements.

A Traffic Impact Study (attached) has been prepared to evaluate the potential traffic impacts associated with the proposed development. A traffic signal at US Highway 50 and Drako Way is necessary to alleviate existing access management concerns. Other intersections, US Highway 50 and Deer Run Road and Deer Run Road and Morgan Mill Road, are expected to operate at acceptable levels of service with the project.

Carson City School District provides educational services for Carson City. The current zoned schools for the project area are Fremont Elementary School, Eagle Valley Middle School, and Carson High School. An expansion is currently underway at Fremont Elementary School to accommodate an increase in student population.

Based on the addition of 520 single family and multi-family dwelling units, it is expected that ultimate development of the project will add 145 elementary students (.279 per unit), 28 middle school students (.054 per unit), and 67 high school students (.129 per unit). A \$15 million capital improvement school bond was recently passed to replace portable classrooms with permanent brick and mortar classrooms and to expand capacity. Carson City School District will also receive additional tax revenue from real property taxes and per student as the project area develops.

The Carson City Sheriff's Office currently provides public safety services to this area and will continue to provide services. The project will be required to provide adequate means of access for emergency vehicles to serve the site and adequate circulation within the site. It is expected that the proposed amendment to SF6, MFA, GC and PF, adding 520 dwelling units, will have a greater impact to public safety than development of the site under the existing GI zoning. Carson City will receive additional revenue (from property taxes, licenses and permit, intergovernmental, charges for services, fines and forfeits, and miscellaneous, etc.) as the project area develops to fund public safety.

The Regional Transportation Commission is responsible for transportation in and around the project area.

Carson City Parks Department will provide recreational and parks services. Enhanced recreational opportunities are provided with this project through the addition of trails and access to adjacent public land.



Carson City Planning Division
108 E. Proctor Street· Carson City NV 89701
Phone: (775) 887-2180 · E-mail: planning@carson.org

FILE # TSM - 18 -

APPLICANT	PHONE #
Keith Serpa	
MAILING ADDRESS, CITY, STATE, ZIP	
P.O.Box 1724 Carson City, NV 89702	
EMAIL	
kserpa@sbcglobal.net	
PROPERTY OWNER	PHONE #
Tahoe IV LLC	775-267-9510 ext. 204
MAILING ADDRESS, CITY, STATE, ZIP	
PO Box 1724 Carson City, NV 89702	
EMAIL	
kserpa@sbcglobal.net	
APPLICANT AGENT/REPRESENTATIVE	PHONE #
Manhard Consulting (Karen Downs)	775-321-6538
MAILING ADDRESS, CITY, STATE, ZIP	
241 Ridge St. Ste 400 Reno, NV 89501	
EMAIL	
kdowns@manhard.com	
Project's Assessor Parcel Number(s)	
008-521-54 & 55; 008-521-89 & 90; 008-522-16, 17 & 18; 008-531-59 & 60	
Project's Street Address	
Nearest Major Cross Street(s)	
Carabou Drive & Unicorn Drive	
Project's Master Plan Designation	
Mixed-Use Residential	
Project's Current Zoning	
General Industrial	
Project Name	
Plateau	

Total Project Area	Number of Lots	Smallest Parcel Size
119.1 acres	270	6,000 sf

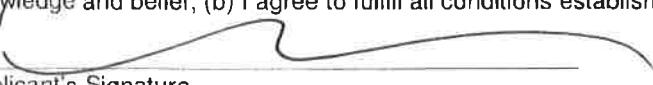
Please provide a brief description of your proposed project below. Provide additional pages to describe your request in more detail.

Tentative Subdivision Map to create 270 single family residential lots, 9 common area parcels, 3 remainder parcels, and 13.4 acres of right-of-way within a +/- 119.1 acre project area.

NOTE: If your project is located within the Historic District or airport area, it may need to be scheduled before the Historic Resources Commission or the Airport Authority in addition to being scheduled for review by the Planning Commission. Planning staff can help you make this determination.

ACKNOWLEDGMENT OF APPLICANT: (a) I certify that the foregoing statements are true and correct to the best of my knowledge and belief; (b) I agree to fulfill all conditions established by the Board of Supervisors.

Applicant's Signature



FOR OFFICE USE ONLY:

CCMC 17.06 and 17.07

**TENTATIVE SUBDIVISION
MAP**

FEE*: \$3,500.00 + noticing fee

*Due after application is deemed complete by staff

SUBMITTAL PACKET – 4 Complete Packets (1 Unbound Original and 3 Copies) including:

Application Form including Applicant's Acknowledgment
 Property Owner Affidavit
 Copy of Conceptual Subdivision Map Letter
 Detailed Written Project Description
 Proposed Street Names
 Master Plan Policy Checklist
 Wet Stamped Tentative Map (24" x 36")
 Reduced Tentative Map (11" x 17")
 Conceptual Drainage Study
 Geotechnical Report
 Traffic Study (if applicable)
 Documentation of Taxes Paid to Date

CD or USB DRIVE with complete application in PDF

STATE AGENCY SUBMITTAL including:

2 Wet-stamped copies of Tentative Map (24" x 36")
 Check made out to NDEP for \$400.00 + \$3/lot
 Check made out to Division of Water Resources for \$180.00 + \$1/lot

Application Reviewed and Received By:

Submittal Deadline: See attached Planning Commission application submittal schedule.

Note: Submittals must be of sufficient clarity and detail for all departments to adequately review the request. Additional information may be required.

10/12/18

Date

PROPERTY OWNER'S AFFIDAVIT

KEITH SERPA

(Print Name) 008-521-54-55 008-531-59-60

subject property located at 008-521-89-90 008-523-16-17-18, and that I have knowledge of, and I agree to, the
(Property Address and APN)

filings of this Tentative Subdivision Map application.

Signature

PO Box 1724 CARSON CITY NV

Address 89702

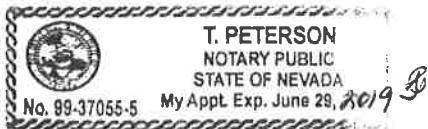
10/12/18
Date

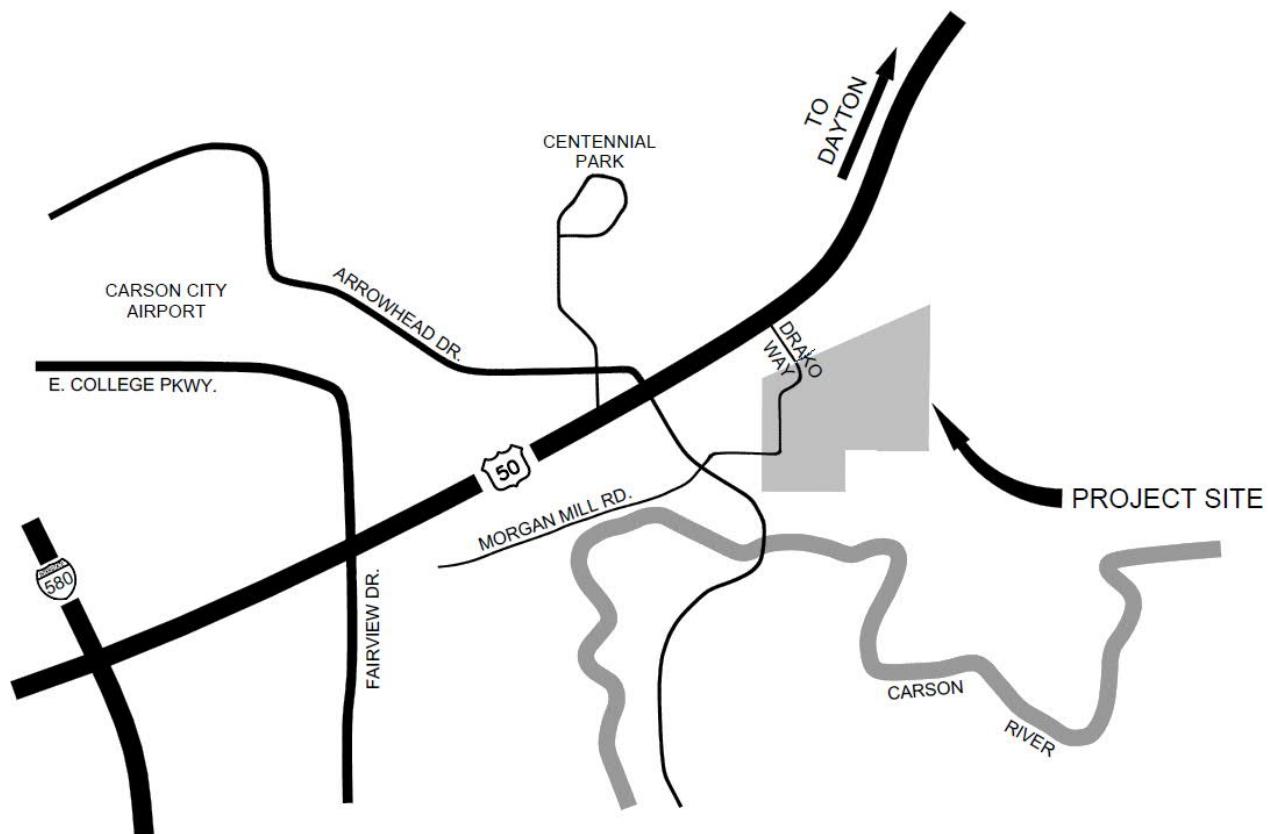
Use additional page(s) if necessary for other names.

STATE OF NEVADA
COUNTY DOUGLAS)

On OCTOBER 12, 2018, personally appeared before me, a notary public,
KEITH SERPA, personally known (or proved) to me to be the person whose name is
subscribed to the foregoing document and who acknowledged to me that
he/she executed the foregoing document.

T. Peterson
Notary Public





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9980 Double R Blvd, Suite 101, Reno, NV 89521 tel: (775) 746-3000 fax: (775) 746-3550 www.manhard.com
 Civil Engineers • Surveyors • Water Resources Engineers • Water & Wastewater Engineers
 Construction Managers • Environmental Scientists • Landscape Architects • Planners

PLATEAU DEVELOPMENT

CARSON CITY, NEVADA

VICINITY MAP

PROJ. MGR.: KCK

DRAWN BY: SDF

DATE: OCT 2018

SCALE: N.T.S.

SHEET

1

OF

1

TIV.CCNV01



Carson City Planning Division

108 E. Proctor Street

Carson City, Nevada 89701

(775) 887-2180 – Hearing Impaired: 711

planning@carson.org

www.carson.org/planning

Date: April 12, 2018

Karen Downs
Manhard Consulting
9850 Double R Blvd, Suite
101
Reno, NV 89521

SITE INFORMATION:

Location:	South of Astro Drive
APN:	008-521-54, -55, -89, 90, 008-522-16, -18, 008-531-59, -60
Master Plan Designation:	Mixed Use Residential
Zoning:	General Industrial (GI)
Parcel size:	112.69 acres
Subject:	CSM-18-035: Plateau

PROJECT DESCRIPTION: A Conceptual Subdivision Map for 339 single family lots on 81 acres, an 11 acre multi-family development, 3 acres of General Commercial, and 17 acres of open space.

The following is a summary of the comments you received at the Conceptual Review meeting held on March 20, 2018 regarding Plateau.

PLANNING DIVISION – Contact Hope Sullivan, Planning Manager

1. It is understood that a re-zoning will be pursued at the time of tentative map submittal. If that does not occur, a Special Use Permit for a residential use in a non-residential zone will be required.
2. As part of the tentative map application, please complete Appendix C: Interim Mixed-Use Evaluation Criteria from the Master Plan.
3. Complementary uses such as retail/office should be ten to thirty percent of the land area.
4. The plans should demonstrate residential and non-residential use intergration.
5. The development should contain a mix of housing types that is appropriate to its scale, location, and land use.
6. Vehicular and pedestrian ways should provide logical and convenient connections between proposed uses and to adjacent existing and proposed uses.

7. Public spaces must be easily accessible to pedestrians and the surrounding community.

PARKS AND RECREATION- Contact Vern Krahn, Park Planner, 887-2262 ext 1006

1. This project area was not included in the adopted 2006 Carson City Parks and Recreation Master Plan's (PRMP) Neighborhood Park Analysis (Appendix 9.3) because the property was zoned industrial. The Park and Recreation Master Plan analysis was only completed within residential or mixed use zoning throughout the City. If the Board of Supervisors approves the proposed change of zoning (land use) from industrial to mixed-use residential, the Parks and Recreation Commission should review the project and provide an opportunity for public input regarding recreational needs, opportunities, and use characteristics for any parks and recreation components and maintenance responsibilities within the proposed development.
2. The plan identifies APN 010-691-04 & 008-531-03 to the east and south of the development as Bureau of Land Management Property, but they are actually owned by Carson City. The land to the east is the future site for a disc golf course complex with anticipated construction in the spring of 2018. Plans should be revised to reflect the proper land ownership.
3. The development will be subject to Residential Construction Tax (RCT), compliant with Nevada Revised Statutes and Carson City Municipal Code.
4. All open space and common area landscaping within the development shall be owned and maintained by a Homeowners/Maintenance Association or similar instrument in perpetuity.
5. The applicant will be required to incorporate "Best Management Practices" into their construction documents and specifications to reduce the spread of noxious weeds. The Parks, Recreation & Open Space Department is willing to assist the applicant with this aspect of their project.
6. The applicant will provide a disclosure in sale documents or similar instruments acknowledging the pre-existence of the City's Land Fill and the Rifle and Pistol Range.
7. The design layout for the subdivision shall provide pedestrian access points to the adjacent City property. Due to the undulating topography and steep slopes, pedestrian access points shall be reviewed and approved by the Parks, Recreation and Open Space Department.
8. The applicant needs to address incorporating bike lanes into the development's street

system network that connects to U.S Highway 50 (East) and Deer Run Road.

9. The applicant will be required to maintain adequate defensible space for fire prevention on the subject property. Compliance with this condition shall be determined by the Carson City Fire Department.
10. All drainage facilities on site will be the applicant's responsibility to maintain into perpetuity.
11. All site clearing/grubbing, grading, and construction activities, including construction worker's parking must occur on the applicants' property, unless permissible to private property owners. No construction activities shall occur on City property. The applicant shall provide protective fencing along the property line to delineate public lands from private property during construction.
12. If it is determined that the development's water system is required to connect to existing water tanks on the City's land, the applicant shall be required to revegetate the disturbed area to its previous condition. Plant material, application method including temporary irrigation, weed control and fencing shall be reviewed and approved by the Parks, Recreation and Open Space Department.

ENGINEERING AND UTILITIES - Contact Stephen Pottey, Project Manager

1. A wet stamped water main analysis must be submitted in accordance with CCDS 15.3.1(a) to show that adequate pressure will be delivered to the meter and fire flows meet the minimum requirements of the Carson City Fire Department. This project is near a zone split, so the analysis must look at receiving water from both zones. One of the zones has low pressure, 40 psi, which meets minimum pressure requirements, but may not be sufficient for this size project when due to head losses, so head losses must be analyzed. Please contact Tom Grundy, P.E. at (775) 283-7081 for fire flow test data.
 - There may not be sufficient water pressures to feed the entire project from the 4880 zone. A connection from the east tank may be necessary.
 - The water main extension proposed from Centennial Park Dr. needs to be on the south side of Highway 50, not the 12" main on the north side of Highway 50.
 - There appears to be potential that the water main in Morgan Mill Road will have to be upsized.
 - Please supply a copy of the 2015 Integrated Water Supply and Facility Plan referenced.
2. A wet stamped sewer analysis must be submitted that includes addressing the effect of flows on the existing City system. See section 15.3.2 of CCDS.
 - The sewer main analysis for this subdivision must analyze the remaining capacity of the Morgan Mill Lift Station against the demand imposed by the subdivision.

- The main at Hwy50 and Airport Road heading south down Airport is at capacity. This main will need to be upsized prior to this project connecting to the sewer system.

3. Storm drain infrastructure must be installed with this subdivision and extended to the Carson River.
4. Natural drainages that enter the subdivision need to be tied into the underground storm drain system at the subdivision, and access must be provided for maintenance.
5. Streets that enter the subdivision and streets that have commercial and/or multifamily development frontages must have sidewalk on both sides of the street. However, because the subdivision is remotely situated with little developable land around it, sidewalks may not be required on both sides of the street, mainly for internal streets. Applicant will need to ensure ADA requirements are met.
6. Detention basins must have metered outlets at the bottom and must have overflows that are protected from erosion. Basins and storm drains must be accessible for private/public maintenance.
7. The detention basin location must be analyzed by a geotechnical engineer.
8. A base flood elevation study has not been completed for the area. A study must be done to determine the base flood elevation(s).
9. Please gain NDOT approval of the HWY 50 intersection concept and spacing prior to the tentative map if practicable, applicant is encouraged to include City staff in discussions.
10. Provisions must be made to allow trucks to access Drako Wy from Hwy 50 without a long detour and without routing them through the neighborhood and access to existing properties along HWY 50 needs to be noted in traffic impact study.
11. Driveways must be able to accommodate minimum required parking without tandem parking, and each "space" must be at least 18'-6" long.
12. The project impact memo calls for low impact development. Carson City promotes the use of low impact development practices.
13. With the tentative map, the applicant must provide data for the current available capacity of sewer and water mains compared to the proposed demand imposed by the development.
14. Water mains must be extended to and through the subdivision. These mains must be looped such that no dead end line has more than 15 services.
15. The scope of the traffic impact study must meet the requirements of Title 18, Chapter 12.13, and be approved by the Carson City Transportation Department for the tentative map. Please contact Dirk Goering, Senior Transportation Planner for scoping, (775) 283-7431.
16. Some areas along the perimeter of the subdivision may have slopes higher than 15%. Please provide a slope map with the tentative map to determine if any of the proposed lots have an average slope greater than 15%.
17. The tentative map must meet the requests made in the NDEP Limited Phase II Environmental Site Assessment Report and Remedial Action Plan memo dated

November 30, 2017. If a revised RAP is submitted to NDEP and used for the development, the tentative map must meet any applicable requests by NDEP for that RAP.

18. Additionally, the developer must hire a certified environmental manager to supervise the remediation required by the RAP including excavation in landfill areas and disposal.
19. Any engineering work done on this project must be wet stamped and signed by an engineer licensed in Nevada. This will include site, grading, utility and erosion control plans as well as standard details.
20. All construction work must be to Carson City Development Standards (CCDS) and meet the requirements of the Carson City Standard Details.
21. Addresses for units will be provided during the building permit review process. Please provide a list of desired street names with the tentative map.
22. Fresh water must be used for Dust control. Contact Rit Palmer at Public Works at 283-7382 for more information.
23. A private testing agreement will be necessary for the compaction and material testing in the street right of way. The form can be obtained through Carson City Permit Engineering.
24. An erosion control plan meeting section 13 of CCDS will be required in the plan set.
25. New electrical service must be underground.
26. Any work performed in the street right of way will require a traffic control plan and a time line type schedule to be submitted before the work can begin. A minimum of one week notice must be given before any work can begin in the street right of way.
27. Please show all easements on the construction drawings.
28. A Technical Drainage Study meeting the requirements of section 14 of the Carson City Development Standards must be submitted with the permit and plans.
29. A Construction Stormwater Permit from the Nevada Division of Environmental Protection (NDEP) will be required.
30. A Dust Control Permit from NDEP will be required.
31. A wet stamped traffic study must be included with the first submittal. See section 12 of CCDS.

These comments are based on a very general site plan and do not indicate a complete review. All pertinent requirements of Nevada State Law, Carson City Code, and Carson City Development Standards will still apply whether mentioned in this letter or not.

FIRE DEPARTMENT - Contact Dave Ruben, 775-283-7153

1. Project must comply with the 2012 IFC and northern Nevada fire code amendments as adopted by Carson City.

2. The project is in the identified wildland urban interface area of Carson City and must comply with the 2012 IWUIC.
3. Hydrants must be provided per Appendix B and Appendix C of the 2012 IFC.
4. The 17 acre open space plot must be maintained by the HOA and recorded.
5. The project will require a vegetation management plan be submitted for review.
6. Per Title 18 Development Standards, Division 12.6, unobstructed fire protection equipment access easements not less than twenty feet (20') wide will be dedicated from the public street to the subdivision or development boundary as determined by the fire chief. Permanent emergency access will be designed and constructed to comply with the requirements of Section 12.12.13 Emergency Access Streets.
7. The access easement points will be the end of the cul-de-sac between lots 281-282, and the drainage easement access road between lots 305-306.

If the proposed Subdivision is anticipating having model homes and or temporary sales office on site, a Special Use Permit will be required.

Comments presented in this letter may not include all the requirements or conditions which may be placed on the project at the time of final review by the Planning Commission and Board of Supervisors.

You may also note comments provided by various city staff at the conceptual review meeting that may not have been included in any written comments. If you have any questions, please feel free to contact me at 775-283-7922.

I look forward to continuing to work with you on your project.

Sincerely,



Hope Sullivan
Planning Manager

cc: CSM-18-035
Conceptual Review Committee



CARSON CITY

Capital of Nevada

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Secured Tax Inquiry Detail for Parcel # 008-521-54

Property Location: CARABOU DR & UNICORN DR Tax Year: 2018-19
Billed to: TAHOE IV LLC Roll #: 017521
P O BOX 1724 District: 2.1
CARSON CITY, NV 89702-0000 Tax Service:
Land Use Code: 150 [Code Table](#)

Outstanding Taxes:

Prior Year	Tax	Penalty/Interest	Total	Amount Paid	Total Due
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No Taxes Owing				
08/20/18	23.75		23.75	.00
10/01/18				
01/07/19				
03/04/19				

[Payment Cart](#) [History](#)

Additional Information

	2018-19	2017-18	2016-17	2015-16	2014-15
Tax Rate	3.5700	3.5700	3.5200	3.5200	3.5400
Tax Cap Percent	4.2	2.6	.2	3.2	3.0
Abatement Amount			.21	.26	1.07



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Secured Tax Inquiry Detail for Parcel # 008-521-55

Property Location: UNICORN DR Tax Year: 2018-19
Billed to: TAHOE IV LLC Roll #: 017522
P O BOX 1724 District: 2.1
CARSON CITY, NV 89702-0000 Tax Service:
Land Use Code: 150 [Code Table](#)

Outstanding Taxes:

Prior Year _____ Tax _____ Penalty/Interest _____ Total _____ Amount Paid _____ Total Due _____

Current Year

08/20/18	35.00	35.00	35.00	.00
10/01/18				
01/07/19				
03/04/19				

No Taxes Owing

[Payment Cart](#)

[History](#)

Additional Information

	2018-19	2017-18	2016-17	2015-16	2014-15
Tax Rate	3.5700	3.5700	3.5200	3.5200	3.5400
Tax Cap Percent	4.2	2.6	.2	3.2	3.0
Abatement Amount			.24	.31	1.51



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Secured Tax Inquiry Detail for Parcel # 008-521-89

Property Location: DRAKO WY
Billed to: TAHOE IV LLC
P O BOX 1724
CARSON CITY, NV 89702-0000 Land Use Code: 150

Tax Year: 2018-19

Roll #: 017523

District: 2.1

Tax Service:

[Code Table](#)

Outstanding Taxes:

Prior Year	Tax	Penalty/Interest	Total	Amount Paid	Total Due
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Current Year

08/20/18	23.03		23.03	23.03	.00
10/01/18					
01/07/19					
03/04/19					

[Payment Cart](#)

[History](#)

Additional Information

	2018-19	2017-18	2016-17	2015-16	2014-15
Tax Rate	3.5700	3.5700	3.5200	3.5200	3.5400
Tax Cap Percent	4.2	2.6	.2	3.2	3.0
Abatement Amount	1.07	1.91	2.11	2.16	2.91



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Secured Tax Inquiry Detail for Parcel # 008-521-90

Property Location: [DRAKO WY / CARABOU DR](#) Tax Year: 2018-19
Billed to: [TAHOE IV LLC](#) Roll #: 017524
P O BOX 1724 District: 2.1
CARSON CITY, NV 89702-0000 Tax Service:
Land Use Code: 150 [Code Table](#)

Outstanding Taxes:

Prior Year	Tax	Penalty/Interest	Total	Amount Paid	Total Due
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Current Year

08/20/18	13.91		13.91	13.91	.00
10/01/18					
01/07/19					
03/04/19					

[Payment Cart](#)

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Additional Information

	2018-19	2017-18	2016-17	2015-16	2014-15
Tax Rate	3.5700	3.5700	3.5200	3.5200	3.5400
Tax Cap Percent	4.2	2.6	.2	3.2	3.0
Abatement Amount	9.84	10.35	10.37	10.38	10.86



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Secured Tax Inquiry Detail for Parcel # 008-522-16

Property Location: [DRAKO WY](#) Tax Year: [2018-19](#)
Billed to: [TAHOE IV LLC](#) Roll #: [017525](#)
[P O BOX 1724](#) District: [2.1](#)
[CARSON CITY, NV 89702-0000](#) Land Use Code: [150](#) Tax Service:

[Code Table](#)**Outstanding Taxes:**

Prior Year	Tax	Penalty/Interest	Total	Amount Paid	Total Due
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Current Year

08/20/18	18.50		18.50	18.50	.00
10/01/18					
01/07/19					
03/04/19					

[Payment Cart](#)[History](#)**Additional Information**

	2018-19	2017-18	2016-17	2015-16	2014-15
Tax Rate	3.5700	3.5700	3.5200	3.5200	3.5400
Tax Cap Percent	4.2	2.6	.2	3.2	3.0



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Secured Tax Inquiry Detail for Parcel # 008-522-17

Property Location: DRAKO WY
Billed to: TAHOE IV LLC
P O BOX 1724
CARSON CITY, NV 89702-0000 Tax Service:
Land Use Code: 150 [Code Table](#)

Tax Year: 2018-19

Roll #: 017526

District: 2.1

Outstanding Taxes:

Prior Year _____ Tax _____ Penalty/Interest _____ Total _____ Amount Paid _____ Total Due _____

Current Year

				No Taxes Owing
08/20/18	18.50	18.50	18.50	.00
10/01/18				
01/07/19				
03/04/19				

[Payment Cart](#)

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Additional Information

	2018-19	2017-18	2016-17	2015-16	2014-15
Tax Rate	3.5700	3.5700	3.5200	3.5200	3.5400
Tax Cap Percent	4.2	2.6	.2	3.2	3.0



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Secured Tax Inquiry Detail for Parcel # 008-522-18

Property Location: DRAKO WY
Billed to: TAHOE IV LLC
P O BOX 1724
CARSON CITY, NV 89702-0000 Land Use Code: 150

Tax Year: 2018-19

Roll #: 017527

District: 2.1

Tax Service:

[Code Table](#)**Outstanding Taxes:**

Prior Year	Tax	Penalty/Interest	Total	Amount Paid	Total Due
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Current Year

08/20/18	18.15		18.15	18.15	.00
10/01/18					
01/07/19					
03/04/19					

[Payment Cart](#)[History](#)**Additional Information**

	2018-19	2017-18	2016-17	2015-16	2014-15
Tax Rate	3.5700	3.5700	3.5200	3.5200	3.5400
Tax Cap Percent	4.2	2.6	.2	3.2	3.0



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Secured Tax Inquiry Detail for Parcel # 008-531-59

Property Location: MORGAN MILL RD / DRAKO WY Tax Year: 2018-19
Billed to: TAHOE IV LLC Roll #: 017528
P O BOX 1724 District: 2.1
CARSON CITY, NV 89702-0000 Tax Service:
Land Use Code: 150 [Code Table](#)

Outstanding Taxes:

Prior Year	Tax	Penalty/Interest	Total	Amount Paid	Total Due
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Current Year

08/20/18	16.25		16.25	16.25	.00
10/01/18					
01/07/19					
03/04/19					

[Payment Cart](#)[History](#)

Additional Information

	2018-19	2017-18	2016-17	2015-16	2014-15
Tax Rate	3.5700	3.5700	3.5200	3.5200	3.5400
Tax Cap Percent	4.2	2.6	.2	3.2	3.0



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Secured Tax Inquiry Detail for Parcel # 008-531-60

Property Location: MORGAN MILL RD / DRAKO WY Tax Year: 2018-19
Billed to: TAHOE IV LLC Roll #: 017529
P O BOX 1724 District: 2.1
CARSON CITY, NV 89702-0000 Tax Service:
Land Use Code: 150 [Code Table](#)

Outstanding Taxes:

Prior Year	Tax	Penalty/Interest	Total	Amount Paid	Total Due
------------	-----	------------------	-------	-------------	-----------

Current Year				No Taxes Owing	
08/20/18	16.25		16.25	16.25	.00
10/01/18					
01/07/19					
03/04/19					

[Payment Cart](#)

[History](#)

Additional Information

	2018-19	2017-18	2016-17	2015-16	2014-15
Tax Rate	3.5700	3.5700	3.5200	3.5200	3.5400
Tax Cap Percent	4.2	2.6	.2	3.2	3.0

PLATEAU Hwy 50 LOTS



PRELIMINARY REPORT

Assessor's Parcel No.: 008-521-54, 55, 89, 90
008-522-16, 17, 18
008-531-59, 60

Order No.: 094712-DVS

Property Address: Vacant Land
Carson City NV, 89701

Escrow Officer: Dana Von Stetina
Office Location: Western Title Company, LLC
Carson Office
2310 S. Carson St, Suite 5A
Carson City NV

Buyers/Borrowers: DGD Development GP

Reference No.:

In response to the above referenced application for a Policy of Title Insurance, **Westcor Land Title Insurance Company** hereby reports that it is prepared to issue, or cause to be issued, as of the date hereof, a Policy or Policies of Title Insurance describing the land and the estate or interest therein, hereinafter set forth, insuring against loss which may be sustained by reason of any defect, lien or encumbrance not shown or referred to as an Exception below or not excluded from coverage pursuant to the printed Schedules, Conditions and Stipulations of said Policy forms. The printed Exceptions and Exclusions from the coverage of said Policy or Policies are set forth on the attached cover. The policy to be issued may contain an arbitration clause. When the Amount of Insurance is less than that set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties. Limitations on Covered Risks applicable to the CLTA and ALTA Homeowner's Policies of Title Insurance which establish a Deductible Amount and a Maximum Dollar Limit of Liability for certain coverages are also set forth on the attached cover. Copies of the Policy forms should be read. They are available from the office which issued this report.

This report (and any supplements or amendments hereto) is issued solely for the purpose of facilitating the issuance of a policy of title insurance and no liability is assumed hereby. If it is desired that liability be assumed prior to the issuance of a policy of title insurance, a Binder or Commitment should be requested.

Dated as of 01/24/2018 at 07:30 am

Western Title Company, an authorized agent

By:

Bonnie Graybill

Bonnie Graybill

The form of Policy of Title Insurance contemplated by this report is:

Report Only

The estate or interest in the land hereinafter described or referred to covered by this Report is:

Fee Simple

Title to said estate or interest at the date hereof is vested in: **Tahoe IV, LLC, a Nevada limited liability company**

Please read the exceptions shown or referred to below and the Exceptions and Exclusions set forth on the attached cover of this report carefully. The exceptions and exclusions are meant to provide you with notice of matters which are not covered under the terms of the title insurance policy and should be carefully considered. It is important to note that this Preliminary Report is not a written representation as to the condition of title and may not list all liens, defects, and encumbrances affecting title to the land.

Order No. 094712-DVS

EXCEPTIONS

At the date hereof exceptions to coverage in addition to the printed Exceptions and Exclusions in said policy form would be as follows:

1. The lien, if any, of supplemental taxes, assessed pursuant to the provision of the Nevada Revised Statutes.
2. Any additional liens which may be levied by reason of said premises being within the **Carson City Water and Sewer District**.
3. Rights of way for any existing roads, trails, canals, streams, ditches, drain ditches, pipe, pole or transmission lines traversing said premises.
4. Water rights, claims or title to water, whether or not recorded.
5. Easement to construct, operate and maintain electric facilities, and incidental purposes, granted to **Sierra Pacific Power Company**, by an instrument, recorded on **February 14, 1962**, in **Book 97, Page 44** as Document No. **47617**, Miscellaneous Records of Carson City, Nevada.
6. Easement to construct, operate and maintain electric facilities, and incidental purposes, granted to **Sierra Pacific Power Company**, by an instrument, recorded on **September 6, 1966**, in **Book 55, Page 127** as Document No. **10560**, Official Records of Carson City, Nevada.
7. Easement to construct, operate and maintain electric facilities, and incidental purposes, granted to **Sierra Pacific Power Company**, by an instrument, recorded on **December 16, 1966**, in **Book 58, Page 306** as Document No. **15134**, Official Records of Carson City, Nevada.
8. Reservations and Rights-of-Way as contained in the Patent from the **United States of America**, recorded on **January 2, 1969**, in **Book 82, Page 69** as Document No. **47046**, Official Records of Carson City, Nevada.
9. An easement as set forth in an instrument, and incidental purposes, recorded on **November 12, 1974**, in **Book 165, Page 260** as Document No. **4399**, Official Records of Carson City, Nevada.
10. Matters as disclosed on Record of Survey filed in the office of the County Recorder of Carson City, State of Nevada on **October 22, 1980**, as Document No. **99675**. Survey Map No. **849**.
11. Easements, dedications, reservations, provisions, recitals, building set back lines, and any other matters as provided for or delineated on Parcel Map No. **880**, filed in the office of the County Recorder of Carson City, State of Nevada, on **March 27, 1981**, as Document No. **3079**. Reference is hereby made to said map for particulars. If one is not included herewith, one will be furnished upon request.
12. Easements, dedications, reservations, provisions, recitals, building set back lines, and any other matters as provided for or delineated on Parcel Map No. **1824**, filed in the office of the County Recorder of Carson City, State of Nevada, on **August 28, 1990**, as Document No. **104795**. Reference is hereby made to said map for particulars. If one is not included herewith, one will be furnished upon request.

13. A Deed of Trust to secure an indebtedness in the amount of \$2,000,000.00, dated August 1, 1996, executed by **J. S Development Company, a Nevada general partnership, as to Parcel 1; John C. Serpa, John C. Serpa, an unmarried man, as to Parcel 2; John C. Serpa, a married man as his sole and separate property, as to Parcels 3, 4, 5 and 6; and John Serpa, as to Parcel 7, as Trustor, to First American Title Company of Nevada, as Trustee, in favor of Pioneer Citizens Bank of Nevada, as Beneficiary, recorded on August 19, 1996, as Document No. 192868, Official Records of Carson City, Nevada. Loan No.: 110000045**

Said Deed of Trust was re-recorded by an instrument, recorded on October 6, 2000, as Document No. 253574, Official Records of Carson City, Nevada.

An agreement to modify the terms and provisions of said Deed of Trust as therein provided, executed by **John C. Serpa; J. S. Development Company, a Nevada General Partnership; and Pioneer Citizens Bank of Nevada, recorded on March 12, 1998, as Document No. 214686, Official Records of Carson City, Nevada.**

An agreement to modify the terms and provisions of said Deed of Trust as therein provided, executed by **John C. Serpa; J. S. Development Company, a Nevada General Partnership; and Pioneer Citizens Bank of Nevada, recorded on October 25, 1999, as Document No. 241620, Official Records of Carson City, Nevada.**

An agreement to modify the terms and provisions of said Deed of Trust as therein provided, executed by **John C. Serpa; and Nevada State Bank, recorded on October 16, 2000, as Document No. 253866, Official Records of Carson City, Nevada.**

An agreement to modify the terms and provisions of said Deed of Trust as therein provided, executed by **John C. Serpa; and Nevada State Bank, recorded on July 12, 2005, as Document No. 339456, Official Records of Carson City, Nevada.**

An agreement to modify the terms and provisions of said Deed of Trust as therein provided, executed by **John C. Serpa; and Nevada State Bank, recorded on May 31, 2007, as Document No. 368311, Official Records of Carson City, Nevada.**

A Substitution of Trustee under said Deed of Trust which names **Western Title Company, Inc., as substituted Trustee, recorded on November 10, 2008, as Document No. 384219, Official Records of Carson City, Nevada.**

An agreement to modify the terms and provisions of said Deed of Trust as therein provided, executed by **J.S. Devco Limited Partnership, a Nevada limited partnership, John C. Serpa and Nevada State Bank, recorded on March 10, 2010, as Document No. 398650, Official Records of Carson City County, Nevada.**

Said document was re-recorded on March 11, 2010, as Document No. 398659, Official Records of Carson City County, Nevada.

An agreement to modify the terms and provisions of said Deed of Trust as therein provided, executed by **J.S. Devco Limited Partnership, a Nevada limited partnership, John C. Serpa and Nevada State Bank, recorded on March 29, 2012, as Document No. 420813, Official Records of Carson City County, Nevada.**

An Assignment of the beneficial interest under said Deed of Trust which names **Horse Creek, LLC, as Assignee, recorded on March 29, 2012, as Document No. 420814, Official Records of Carson City County, Nevada.**

A Substitution of Trustee under said Deed of Trust which names **Stewart Title Company, as substituted Trustee, recorded on April 1, 2013, as Document No. 432781, Official Records of Carson City County, Nevada.**

A Notice of Default and Election to Sell under the terms of said Deed of Trust, executed by **Horse Creek, LLC, recorded on April 1, 2013, as Document No. 432782, Official Records of Carson City County, Nevada.**

A Notice of Trustee's Sale under said Deed of Trust, executed by **Stewart Title Company, recorded on July 10, 2013, as Document No. 436221, Official Records of Carson City County, Nevada. Date of Sale: August 1, 2013.**

14. A Hazardous Substances Certificate and Indemnity Agreement executed by and between the parties named therein, subject to the terms, covenants and conditions therein provided, dated **August 1, 1996**, by and between **John C. Serpa; J.S. Development Company, a Nevada general partnership; and Pioneer Citizens Bank of Nevada**, recorded on **August 19, 1996**, as Document No. **192869**, Official Records of Carson City, Nevada.
15. Covenants, conditions and restrictions as set forth in an instrument, recorded on **April 24, 1998**, as Document No. **216548**, Official Records of Carson City, Nevada; but omitting any covenants or restrictions, if any, including, but not limited to those based upon race, color, religion, sex, sexual orientation, familial status, marital status, disability, handicap, national origin, ancestry, or source of income as set forth in applicable state or federal laws, except to the extent that said covenant or restriction is permitted by applicable law.
16. The effect of a Right-of-Way Grant, dated **December 9, 2004**, by **United States Department of the Interior Bureau of Land Management**, to **Nevada Commission for the Reconstruction of the V & T Railway**, recorded on **January 10, 2005**, as Document No. **330468**, Official Records of Carson City, Nevada.
17. A certified copy of a Judgment in the amount of **\$866,165.33** plus interest, costs, attorney fees and any other amounts due from **Chase Millennium, LLC, a Nevada limited liability company, et al**, as Debtor, in favor of **First Financial Bank, National Association**, as Creditor, in Carson City County of the **In the Second Judicial District Court of the State of Nevada in and for the County of Washoe**, as Case No. **CV09-01516**, recorded on **April 11, 2011**, as Document No. **410913**, Official Records of Carson City County, Nevada.
18. A certified copy of a Judgment in the amount of **\$1,203,183.72** plus interest, costs, attorney fees and any other amounts due from **John C. Serpa, individually and as Trustee of the John C. Serpa Trust, et al**, as Debtor, in favor of **First Financial Bank, N.A.**, as Creditor, in Carson City County of the **In the Second Judicial District Court of the State of Nevada in and for the County of Washoe**, as Case No. **CV11-01205**, recorded on **December 31, 2016**, as Document No. **460770**, Official Records of Carson City County, Nevada.

A Satisfaction of Judgment as to Lane Defendants Only issued out of said action was recorded on **July 31, 2017**, as Document No. **477298**, Official Records of Carson City County, Nevada.

19. Rights of parties in possession.
20. The requirement that an Owner's Declaration/Affidavit be completed, and supplied for review prior to the issuance of a policy of title insurance.
21. Prior to the issuance of any policy of title insurance, the following must be furnished to the Company with respect to **Tahoe IV, LLC, a Nevada limited liability company**:

This Company will require a copy of the articles of organization for **Tahoe IV, LLC, a Nevada limited liability company**, and any certificates of amendments filed with the Secretary of State, together with copies of any management agreements or operating agreements, together with a current list of all members of said limited liability company.

NOTE: Taxes for the fiscal year **2017-2018**, in the amount of **\$23.76** have been paid in full. (APN **008-521-54**)

NOTE: Taxes for the fiscal year **2017-2018**, in the amount of **\$35.01** have been paid in full. (APN **008-521-55**)

NOTE: Taxes for the fiscal year **2017-2018**, in the amount of **\$22.20** have been paid in full. (APN **008-521-89**)

NOTE: Taxes for the fiscal year **2017-2018**, in the amount of **\$13.41** have been paid in full. (APN **008-521- 90**)

NOTE: Taxes for the fiscal year **2017-2018**, in the amount of **\$18.51** have been paid in full. (APN **008-522-16**)

NOTE: Taxes for the fiscal year **2017-2018**, in the amount of **\$18.51** have been paid in full. (APN **008-522-17**)

NOTE: Taxes for the fiscal year **2017-2018**, in the amount of **\$18.16** have been paid in full. (APN **008-522-18**)

NOTE: Taxes for the fiscal year 2017-2018, in the amount of \$16.26 have been paid in full. (APN 008-531-59)

NOTE: Taxes for the fiscal year 2017-2018, in the amount of \$16.26 have been paid in full. (APN 008-531-60)

THE FOLLOWING NOTES ARE FOR INFORMATION PURPOSES ONLY:

WESTERN TITLE COMPANY RESERVES THE RIGHT TO AMEND THIS PRELIMINARY TITLE REPORT AT ANY TIME.

******ATTENTION LENDERS******

THE 100 ENDORSEMENT IS NO LONGER BEING OFFERED. THE REPLACEMENT ALTERNATIVE IS THE ALTA 9.10-06 AND IS NOW REFLECTED IN THE ALTA SUPPLEMENT IN THE PRELIMINARY TITLE REPORT.

NOTE: A search of the Official Records for the county referenced in the above order number, for the 24 months immediately preceding the date above discloses the following instruments purporting to convey the title to said land:
None

NOTE:

If any current work of improvements have been made on the herein described real property (within the last 90 days) and this Report is issued in contemplation of a Policy of Title Insurance which affords mechanic lien priority coverage (i.e. ALTA POLICY); the following information must be supplied for review and approval prior to the closing and issuance of said Policy: (a) Copy of Indemnity Agreement; (b) Financial Statements; (c) Construction Loan Agreement; (d) If any current work of improvements have been made on the herein described real property Building Construction Contract between borrower and contractor; (e) Cost breakdown of construction; (f) Appraisal; (g) Copy of Voucher or Disbursement Control Statement (if project is complete).

NOTE: This report makes no representations as to water, water rights, minerals or mineral rights and no reliance can be made upon this report or a resulting title policy for such rights or ownership.

NOTE: Notwithstanding anything to the contrary in this Report, if the policy to be issued is other than an ALTA Owner's Policy (6/17/06) or ALTA Loan Policy (6/17/06), the policy may not contain an arbitration clause, or the terms of the arbitration clause may be different from those set forth in this Report. If the policy does contain an arbitration clause, and the Amount of Insurance is less than the amount, if any, set forth in the arbitration clause, all arbitrable matters shall be arbitrated at the option of either the Company or the Insured as the exclusive remedy of the parties.

NOTE: The map, if any, attached hereto is subject to the following disclaimer:

WESTERN TITLE COMPANY does not represent this plat as a survey of the land indicated hereon, although believed to be correct, no liability is assumed as to the accuracy thereof.

Legal Description

All that certain real property situate in Carson City, State of Nevada, described as follows:

PARCEL 1:

The North 1/2 of the Northwest 1/4 of the Northwest 1/4 of Section 12, Township 15 North, Range 20 East, M.D.B.&M., Carson City, Nevada.

EXCEPTING THEREFROM those portions as described in instruments recorded June 5, 1981 in Book 301, Page 379 as Document No. 4610, and November 8, 2002 as Document No. 286658, Official Records of Carson City, Nevada.

FURTHER EXCEPTING THEREFROM that portion lying northerly of Morgan Mill Road and westerly of Drako Way as described in instrument recorded June 5, 1981 in Book 301, Page 379 as Document No. 4610, Official Records of Carson City.

PARCEL 1A:

All those certain parcels as described in the Abandonment recorded October 18, 2002 as Document No. 285463, Official Records of Carson City, Nevada.

Reference is further made to the hereinabove described property on Record of Survey filed for record in the office of the Carson City Recorder on October 22, 1980 in Book 4 of Maps, Page 849 as Document No. 99675.

PARCEL 2:

The North 1/2 of the Northwest 1/4 of the Northwest 1/4 of Section 12, Township 15 North, Range 20 East, M.D.B.&M., Carson City, Nevada.

EXCEPTING THEREFROM those portions as described in instruments recorded June 5, 1981 in Book 301, Page 379 as Document No. 4610, and November 8, 2002 as Document No. 286658, Official Records of Carson City, Nevada.

FURTHER EXCEPTING THEREFROM that portion lying southerly of Morgan Mill Road and easterly of Drako Way as described in instrument recorded June 5, 1981 in Book 301, Page 379 as Document No. 4610, Official Records of Carson City.

Reference is further made to the hereinabove described property on Record of Survey filed for record in the office of the Carson City Recorder on October 22, 1980 in Book 4 of Maps, Page 849 as Document No. 99675.

PARCEL 3:

Parcels A and B as shown on Map of Division into Large Parcels for JOHN C. SERPA, filed for record in the office of the Carson City Recorder on March 27, 1981 in Book 4 of Maps, Page 880 as Document No. 3079, Official Records of Carson City, State of Nevada.

EXCEPTING THEREFROM those portions as described in instruments recorded November 8, 2002 as Document No. 286659 and November 8, 2002 as Document No. 286660, Official Records of Carson City, Nevada.

PARCEL 4:

Parcels B, C and D as shown on the Parcel Map for JOHN C. SERPA, filed in the office of the Carson City Recorder on August 28, 1990 in Book 6, Page 1824 as Document No. 104795, Official Records of Carson City, State of Nevada.

Assessor's Parcel Number(s):
008-521-54, 55, 89, 90

Page 6 of 15

Initial

Initial

Initial

Initial

008-522-16, 17, 18
008-531-59, 60

Exhibit A (Revised 02-07-14)

**CALIFORNIA LAND TITLE ASSOCIATION
STANDARD COVERAGE POLICY – 1990**

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance or governmental regulation (including but not limited to building or zoning laws, ordinances, or regulations) restricting, regulating, prohibiting or relating (i) the occupancy, use, or enjoyment of the land; (ii) the character, dimensions or location of any improvement now or hereafter erected on the land; (iii) a separation in ownership or a change in the dimensions or area of the land or any parcel of which the land is or was a part; or (iv) environmental protection, or the effect of any violation of these laws, ordinances or governmental regulations, except to the extent that a notice of the enforcement thereof or a notice of a defect, lien, or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
(b) Any governmental police power not excluded by (a) above, except to the extent that a notice of the exercise thereof or notice of a defect, lien or encumbrance resulting from a violation or alleged violation affecting the land has been recorded in the public records at Date of Policy.
2. Rights of eminent domain unless notice of the exercise thereof has been recorded in the public records at Date of Policy, but not excluding from coverage any taking which has occurred prior to Date of Policy which would be binding on the rights of a purchaser for value without knowledge.
3. Defects, liens, encumbrances, adverse claims or other matters:
 - (a) whether or not recorded in the public records at Date of Policy, but created, suffered, assumed or agreed to by the insured claimant;
 - (b) not known to the Company, not recorded in the public records at Date of Policy, but known to the insured claimant and not disclosed in writing to the Company by the insured claimant prior to the date the insured claimant became an insured under this policy;
 - (c) resulting in no loss or damage to the insured claimant;
 - (d) attaching or created subsequent to Date of Policy; or
 - (e) resulting in loss or damage which would not have been sustained if the insured claimant had paid value for the insured mortgage or for the estate or interest insured by this policy.
4. Unenforceability of the lien of the insured mortgage because of the inability or failure of the insured at Date of Policy, or the inability or failure of any subsequent owner of the indebtedness, to comply with the applicable doing business laws of the state in which the land is situated.
5. Invalidity or unenforceability of the lien of the insured mortgage, or claim thereof, which arises out of the transaction evidenced by the insured mortgage and is based upon usury or any consumer credit protection or truth in lending law.
6. Any claim, which arises out of the transaction vesting in the insured the estate of interest insured by this policy or the transaction creating the interest of the insured lender, by reason of the operation of federal bankruptcy, state insolvency or similar creditors' rights laws.

EXCEPTIONS FROM COVERAGE - SCHEDULE B, PART I

This policy does not insure against loss or damage (and the Company will not pay costs, attorneys' fees or expenses) which arise by reason of:

1. Taxes or assessments which are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the public records.
Proceedings by a public agency which may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the public records.
2. Any facts, rights, interests, or claims which are not shown by the public records but which could be ascertained by an inspection of the land or which may be asserted by persons in possession thereof.
3. Easements, liens or encumbrances, or claims thereof, not shown by the public records.
4. Discrepancies, conflicts in boundary lines, shortage in area, encroachments, or any other facts which a correct survey would disclose, and which are not shown by the public records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b) or (c) are shown by the public records.
6. Any lien or right to a lien for services, labor or material not shown by the public records.

CLTA HOMEOWNER'S POLICY OF TITLE INSURANCE (12-02-13) ALTA HOMEOWNER'S POLICY OF TITLE INSURANCE

EXCLUSIONS

In addition to the Exceptions in Schedule B, You are not insured against loss, costs, attorneys' fees, and expenses resulting from:

1. Governmental police power, and the existence or violation of those portions of any law or government regulation concerning:
 - a. building;
 - b. zoning;
 - c. land use;
 - d. improvements on the Land;
 - e. land division; and
 - f. environmental protection.

This Exclusion does not limit the coverage described in Covered Risk 8.a., 14, 15, 16, 18, 19, 20, 23 or 27.

2. The failure of Your existing structures, or any part of them, to be constructed in accordance with applicable building codes. This Exclusion does not limit the coverage described in Covered Risk 14 or 15.
3. The right to take the Land by condemning it. This Exclusion does not limit the coverage described in Covered Risk 17.
4. Risks:
 - a. that are created, allowed, or agreed to by You, whether or not they are recorded in the Public Records;
 - b. that are Known to You at the Policy Date, but not to Us, unless they are recorded in the Public Records at the Policy Date;
 - c. that result in no loss to You; or
 - d. that first occur after the Policy Date - this does not limit the coverage described in Covered Risk 7, 8.e., 25, 26, 27 or 28.
5. Failure to pay value for Your Title.
6. Lack of a right:

- a. to any land outside the area specifically described and referred to in paragraph 3 of Schedule A; and
- b. in streets, alleys, or waterways that touch the Land.

This Exclusion does not limit the coverage described in Covered Risk 11 or 21.

- 7. The transfer of the Title to You is invalid as a preferential transfer or as a fraudulent transfer or conveyance under federal bankruptcy, state insolvency, or similar creditors' rights laws.
- 8. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
- 9. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

LIMITATIONS ON COVERED RISKS

Your insurance for the following Covered Risks is limited on the Owner's Coverage Statement as follows:

For Covered Risk 16, 18, 19, and 21 Your Deductible Amount and Our Maximum Dollar Limit of Liability shown in Schedule A.

The deductible amounts and maximum dollar limits shown on Schedule A are as follows:

	<u>Your Deductible Amount</u>	<u>Our Maximum Dollar Limit of Liability</u>
Covered Risk 16:	1.00% of Policy Amount Shown in Schedule A or \$2,500.00 _____ (whichever is less)	\$ 10,000.00 _____
Covered Risk 18:	1.00% of Policy Amount Shown in Schedule A or \$5,000.00 _____ (whichever is less)	\$25,000.00 _____
Covered Risk 19:	1.00% of Policy Amount Shown in Schedule A or \$5,000.00 _____ (whichever is less)	\$25,000.00 _____
Covered Risk 21:	1.00% of Policy Amount Shown in Schedule A or \$2,500.00 _____ (whichever is less)	\$ 5,000.00 _____

2006 ALTA LOAN POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

- 1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land;
 - (ii) the character, dimensions, or location of any improvement erected on the Land;
 - (iii) the subdivision of land; or
 - (iv) environmental protection;

or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.

(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.

2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
 - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
 - (c) resulting in no loss or damage to the Insured Claimant;
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 13 or 14); or
 - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury or any consumer credit protection or truth-in-lending law.
6. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
 - (a) a fraudulent conveyance or fraudulent transfer, or
 - (b) a preferential transfer for any reason not stated in Covered Risk 13(b) of this policy.
7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the Insured Mortgage in the Public Records. This Exclusion does not modify or limit the coverage provided under Covered Risk 11(b).

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

Except as provided in Schedule B - Part II, This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

PART I

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown by the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and not shown by the Public Records.

5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.

PART II

In addition to the matters set forth in Part I of this Schedule, the Title is subject to the following matters, and the Company insures against loss or damage sustained in the event that they are not subordinate to the lien of the Insured Mortgage:

2006 ALTA OWNER'S POLICY (06-17-06)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy, and the Company will not pay loss or damage, costs, attorneys' fees, or expenses that arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land;
 - (ii) the character, dimensions, or location of any improvement erected on the Land;
 - (iii) the subdivision of land; or
 - (iv) environmental protection;
 or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5.
- (b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 6.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
 - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
 - (c) resulting in no loss or damage to the Insured Claimant;
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 9 and 10); or
 - (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Title.
4. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction vesting the Title as shown in Schedule A, is
 - (a) a fraudulent conveyance or fraudulent transfer; or
 - (b) a preferential transfer for any reason not stated in Covered Risk 9 of this policy.
5. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching between Date of Policy and the date of recording of the deed or other instrument of transfer in the Public Records that vests Title as shown in Schedule A.

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

EXCEPTIONS FROM COVERAGE

This policy does not insure against loss or damage, and the Company will not pay costs, attorneys' fees or expenses, that arise by reason of:

The above policy form may be issued to afford either Standard Coverage or Extended Coverage. In addition to the above Exclusions from Coverage, the Exceptions from Coverage in a Standard Coverage policy will also include the following Exceptions from Coverage:

1. (a) Taxes or assessments that are not shown as existing liens by the records of any taxing authority that levies taxes or assessments on real property or by the Public Records; (b) proceedings by a public agency that may result in taxes or assessments, or notices of such proceedings, whether or not shown by the records of such agency or by the Public Records.
2. Any facts, rights, interests, or claims that are not shown in the Public Records but that could be ascertained by an inspection of the Land or that may be asserted by persons in possession of the Land.
3. Easements, liens or encumbrances, or claims thereof, not shown by the Public Records.
4. Any encroachment, encumbrance, violation, variation, or adverse circumstance affecting the Title that would be disclosed by an accurate and complete land survey of the Land and that are not shown by the Public Records.
5. (a) Unpatented mining claims; (b) reservations or exceptions in patents or in Acts authorizing the issuance thereof; (c) water rights, claims or title to water, whether or not the matters excepted under (a), (b), or (c) are shown by the Public Records.
6. Any lien or right to a lien for services, labor or material not shown by the Public Records.
7. Variable exceptions such as taxes, easements, CC&R's, etc. shown here.

ALTA EXPANDED COVERAGE RESIDENTIAL LOAN POLICY (12-02-13)

EXCLUSIONS FROM COVERAGE

The following matters are expressly excluded from the coverage of this policy and the Company will not pay loss or damage, costs, attorneys' fees or expenses which arise by reason of:

1. (a) Any law, ordinance, permit, or governmental regulation (including those relating to building and zoning) restricting, regulating, prohibiting, or relating to
 - (i) the occupancy, use, or enjoyment of the Land;
 - (ii) the character, dimensions, or location of any improvement erected on the Land;
 - (iii) the subdivision of land; or
 - (iv) environmental protection;or the effect of any violation of these laws, ordinances, or governmental regulations. This Exclusion 1(a) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
(b) Any governmental police power. This Exclusion 1(b) does not modify or limit the coverage provided under Covered Risk 5, 6, 13(c), 13(d), 14 or 16.
2. Rights of eminent domain. This Exclusion does not modify or limit the coverage provided under Covered Risk 7 or 8.
3. Defects, liens, encumbrances, adverse claims, or other matters
 - (a) created, suffered, assumed, or agreed to by the Insured Claimant;
 - (b) not Known to the Company, not recorded in the Public Records at Date of Policy, but Known to the Insured Claimant and not disclosed in writing to the Company by the Insured Claimant prior to the date the Insured Claimant became an Insured under this policy;
 - (c) resulting in no loss or damage to the Insured Claimant;
 - (d) attaching or created subsequent to Date of Policy (however, this does not modify or limit the coverage provided under Covered Risk 11, 16, 17, 18, 19, 20, 21, 22, 23, 24, 27 or 28); or

- (e) resulting in loss or damage that would not have been sustained if the Insured Claimant had paid value for the Insured Mortgage.
- 4. Unenforceability of the lien of the Insured Mortgage because of the inability or failure of an Insured to comply with applicable doing-business laws of the state where the Land is situated.
- 5. Invalidity or unenforceability in whole or in part of the lien of the Insured Mortgage that arises out of the transaction evidenced by the Insured Mortgage and is based upon usury, or any consumer credit protection or truth-in-lending law. This Exclusion does not modify or limit the coverage provided in Covered Risk 26.
- 6. Any claim of invalidity, unenforceability or lack of priority of the lien of the Insured Mortgage as to Advances or modifications made after the Insured has Knowledge that the vestee shown in Schedule A is no longer the owner of the estate or interest covered by this policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11.
- 7. Any lien on the Title for real estate taxes or assessments imposed by governmental authority and created or attaching subsequent to Date of Policy. This Exclusion does not modify or limit the coverage provided in Covered Risk 11(b) or 25.
- 8. The failure of the residential structure, or any portion of it, to have been constructed before, on or after Date of Policy in accordance with applicable building codes. This Exclusion does not modify or limit the coverage provided in Covered Risk 5 or 6.
- 9. Any claim, by reason of the operation of federal bankruptcy, state insolvency, or similar creditors' rights laws, that the transaction creating the lien of the Insured Mortgage, is
 - (a) a fraudulent conveyance or fraudulent transfer, or
 - (b) a preferential transfer for any reason not stated in Covered Risk 27(b) of this policy.
- 10. Contamination, explosion, fire, flooding, vibration, fracturing, earthquake, or subsidence.
- 11. Negligence by a person or an Entity exercising a right to extract or develop minerals, water, or any other substances.

PRIVACY POLICY

The Financial Services Modernization Act recently enacted by Congress has brought many changes to the financial services industry, which includes insurance companies and their agents. One of the changes requires Western Title Company, LLC, a Nevada limited liability company, to explain to you how we collect and use customer information.

Western Title Company has always and will continue to adhere to strict standards of confidentiality when it comes to protecting the privacy, accuracy and security of customer information provided to us.

PERSONAL INFORMATION WE MAY COLLECT:

Western Title collects information about you (for instance, your name, address and telephone number), and information about your transaction, including the identity of the real property you are buying or refinancing. We obtain copies of deeds, notes or mortgages that may be involved in the transaction. We may obtain this information directly from you or from the lender, attorney, or real estate broker or agent that you have chosen. When we provide escrow, or settlement services, or mortgage loan servicing, we may obtain your social security number, along with other information from third parties including appraisals, credit reports, land surveys, loan account balances, and sometimes your bank account information in order to facilitate your transaction.

HOW WE USE THIS INFORMATION:

Western Title Company does *NOT* share your information with marketers outside our own family. There is *NO* need to tell us to keep your information to ourselves because we share your information only to provide the service requested by you, your lender or in other ways permitted by law. The privacy law permits some sharing of information without your approval. We may share your information internally and with nonaffiliated third parties in order to carry out and service your transaction, to protect against fraud or unauthorized transactions, for institutional risk control and to provide information to government and law enforcement agencies. Companies within a family may share certain information among themselves in order to identify and market their own products that they think may be useful to you. Credit information about you is shared only to facilitate your transaction or for some other purpose permitted by law.

HOW WE PROTECT YOUR INFORMATION:

We restrict access to nonpublic information about you to our employees that need the information to provide products and services to you. We maintain physical, electronic and procedural safeguards that comply with the law to guard your nonpublic information. We reinforce Western Title's privacy policy with our employees.

You do not need to respond to this notice, unless you have concerns about any information we have obtained. You can write us at:

Western Title Company, LLC, a Nevada limited liability company
Attention: Operations Manager
P.O. Box 3059
Reno, NV 89505

Western Title Company, LLC, is an agent for Chicago Title Insurance, Westcor Land Title Insurance Company, Fidelity National Title Insurance Company, Old Republic National Title Insurance Company, Commonwealth Land Title, and Stewart Title Guaranty Company. You may receive additional Privacy Policy information from these companies.

PORTION SECTION 1 & SECTION 2
T.15 N., R.20 E., M.D.B. & M.

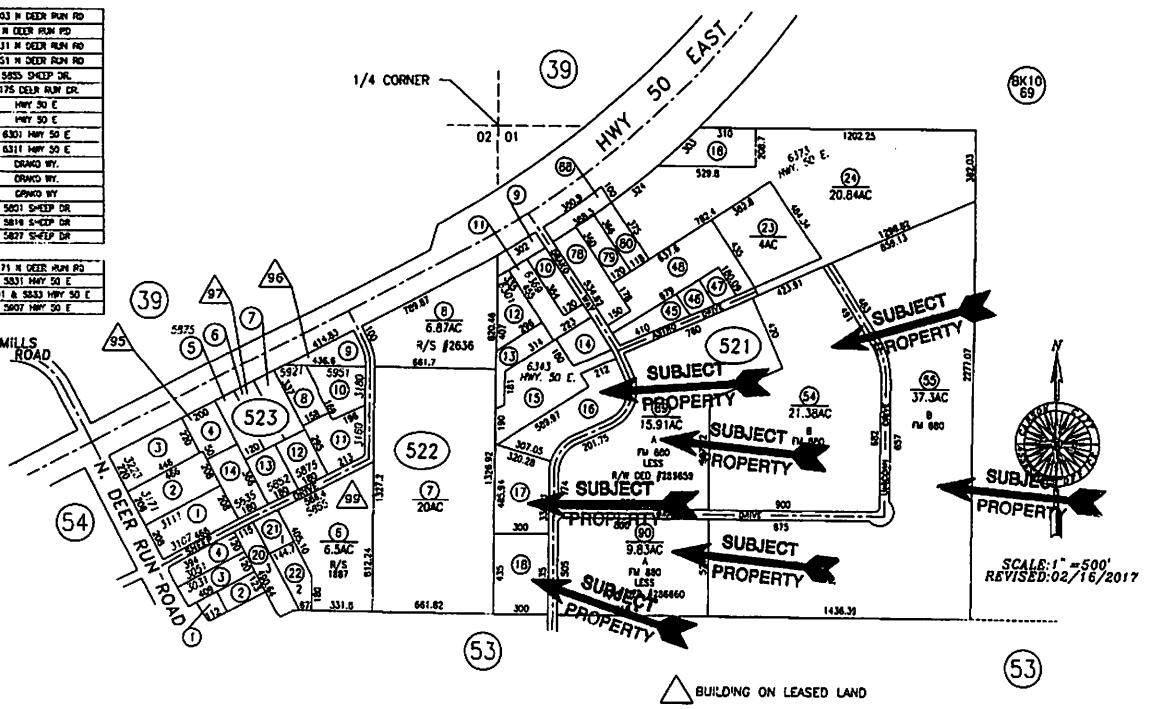
BLOCK 521	
APN	RECORD
C08-321-43	A PM629
C08-321-45	B PM629
C08-321-46	C PM629
C08-321-47	D PM629
C08-321-48	6509 ASTRO DR
C08-321-49	6311 & 6321 HWY 50 E
C08-321-50	HWY 50 E
C08-321-51	R/S 2097 LESS #154446
C08-321-52	R/S 2097 LESS #154446
C08-321-53	R/S 2097 LESS #154446
C08-321-54	R/W HWY 50 E
C08-321-55	R/W HWY 50 E
C08-321-56	R/W HWY #154446

BLOCK 522	
C08-322-01	A PM756
C08-322-02	B PM756
C08-322-03	R/W HWY 229443
C08-322-04	R/W HWY 229443
C08-322-05	3031 H DEER RUN RD
C08-322-06	5501 SHEEP DR.
C08-322-07	3175 DEER RUN DR.
C08-322-08	R/S 2636
C08-322-09	R/W HWY #154446, R/S 2636
C08-322-10	HWY 50 E
C08-322-11	HWY 50 E
C08-322-12	A PM628
C08-322-13	B PM628
C08-322-14	B PM1824
C08-322-15	C PM1824
C08-322-16	D PM1824
C08-322-17	3 PM2628
C08-322-18	1 PM2628
C08-322-19	2 PM2628
C08-322-20	2 PM2628
C08-322-21	3 PM2628
C08-322-22	4 PM2628

BLOCK 523	
C08-323-02	A PM840
C08-323-04	LEASE #144071 C08-323-05
C08-323-05	3171 H DEER RUN RD
C08-323-06	3331 HWY 50 E
C08-323-07	LEASE #122491 C08-323-07
C08-323-08	LEASE #144071 C08-323-08
C08-323-09	LEASE #144071 C08-323-09
C08-323-10	LEASE #144071 C08-323-10
C08-323-11	LEASE #144071 C08-323-11
C08-323-12	3 PM378
C08-323-13	4 PM378
C08-323-14	1 PM378

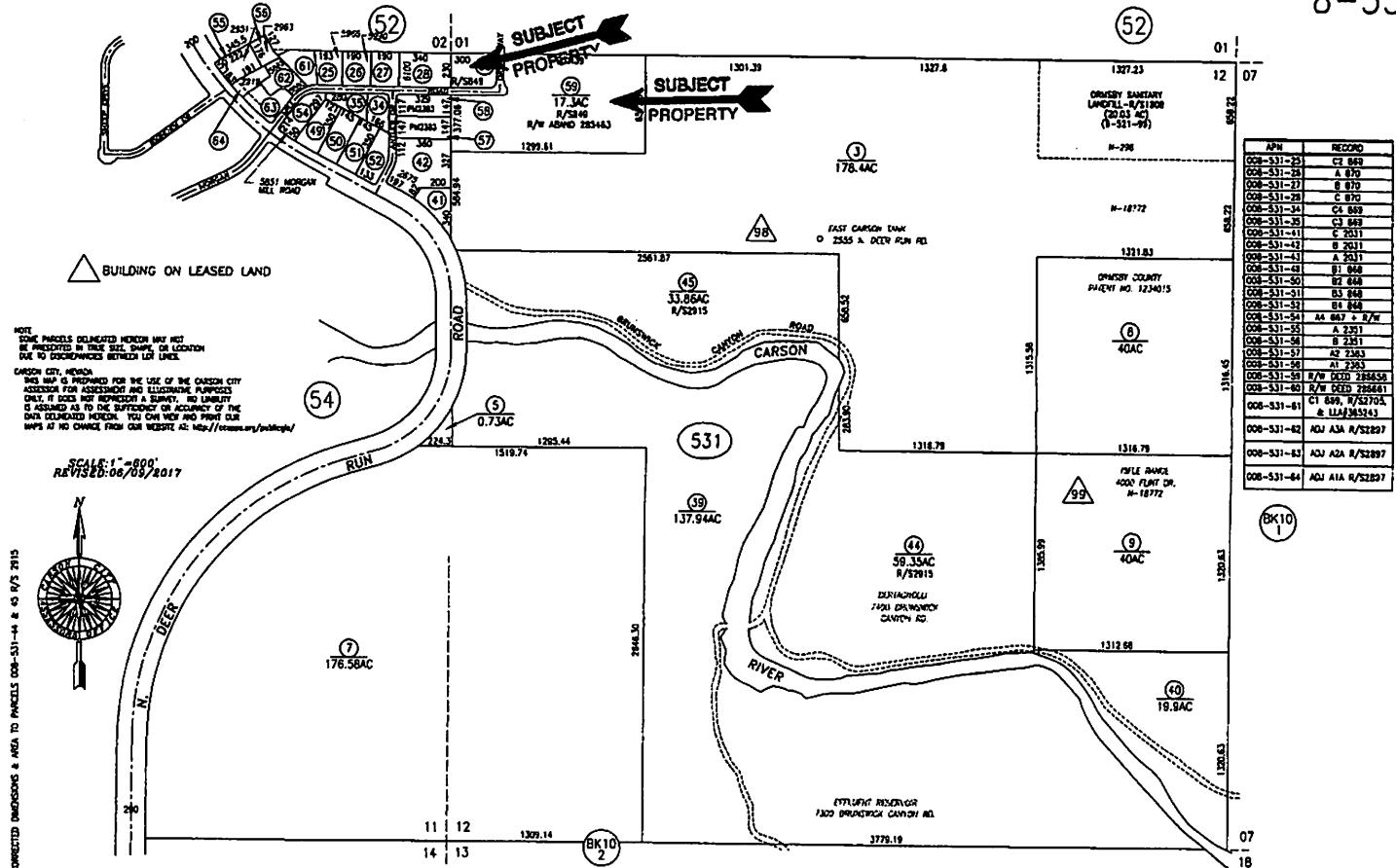
NOTE: SOME PARCELS DELIMITED HERINCE MAY NOT BE PRECISELY IN TRUE SIZE, SHAPE, OR LOCATION DUE TO INACCURACIES IN BOUNDARY LINES.

CARSON CITY, NEVADA
THIS MAP IS PREPARED FOR THE USE OF THE CARSON CITY
ASSESSOR FOR ASSESSMENT AND ILLUSTRATIVE PURPOSES
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OR PROPERTY SHOULD BE PURCHASED OR SOLD ON THE
BASIS OF THIS MAP. FOR AN ACCURATE SURVEY
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SECTION 12, T.15 N., R.20 E., M.D.B. & M.

8-53





Master Plan Policy Checklist

Conceptual & Tentative Subdivisions, PUD's & Parcel Maps

PURPOSE

The purpose of a development checklist is to provide a list of questions that address whether a development proposal is in conformance with the goals and objectives of the 2006 Carson City Master Plan that are related to subdivisions of property. This checklist is designed for developers, staff, and decision-makers and is intended to be used as a guide only.

Development Name: Plateau

Reviewed By: _____

Date of Review: _____

DEVELOPMENT CHECKLIST

The following five themes are those themes that appear in the Carson City Master Plan and which reflect the community's vision at a broad policy level. Each theme looks at how a proposed development can help achieve the goals of the Carson City Master Plan. A check mark indicates that the proposed development meets the applicable Master Plan policy. The Policy Number is indicated at the end of each policy statement summary. Refer to the Comprehensive Master Plan for complete policy language.

CHAPTER 3: A BALANCED LAND USE PATTERN



The Carson City Master Plan seeks to establish a balance of land uses within the community by providing employment opportunities, a diverse choice of housing, recreational opportunities, and retail services.

Is or does the proposed development:

- Consistent with the Master Plan Land Use Map in location and density?
- Meet the provisions of the Growth Management Ordinance (1.1d, Municipal Code 18.12)?
- Encourage the use of sustainable building materials and construction techniques to promote water and energy conservation (1.1e, f)?

N/A Located in a priority infill development area (1.2a)?

- Provide pathway connections and easements consistent with the adopted Unified Pathways Master Plan and maintain access to adjacent public lands (1.4a)?

N/A Encourage cluster development techniques, particularly at the urban interface with surrounding public lands, as appropriate, and protect distinctive site features (1.4b, c, 3.2a)?

N/A At adjacent county boundaries, coordinated with adjacent existing or planned development with regards to compatibility, access and amenities (1.5a)?

- ☒ Located to be adequately served by city services including fire and sheriff services, and coordinated with the School District to ensure the adequate provision of schools (1.5d)?
- ☒ In identified Mixed-Use areas, promote mixed-use development patterns as appropriate for the surrounding context consistent with the land use descriptions of the applicable Mixed-Use designation, and meet the intent of the Mixed-Use Evaluation Criteria (2.1b, 2.2b, 2.3b, Land Use Districts, Appendix C)?
- ☒ Provide a variety of housing models and densities within the urbanized area appropriate to the development size, location and surrounding neighborhood context (2.2a, 9.1a)?
- ☒ Protect environmentally sensitive areas through proper setbacks, dedication, or other mechanisms (3.1b)?
- ☒ If at the urban interface, provide multiple access points, maintain defensible space (for fires) and are constructed of fire resistant materials (3.3b)?
- ☒ Sited outside the primary floodplain and away from geologic hazard areas or follow the required setbacks or other mitigation measures (3.3d, e)?
- ☒ Provide for levels of services (i.e. water, sewer, road improvements, sidewalks, etc.) consistent with the Land Use designation and adequate for the proposed development (Land Use table descriptions)?
- ☒ If located within an identified Specific Plan Area (SPA), meet the applicable policies of that SPA (Land Use Map, Chapter 8)?

CHAPTER 4: EQUITABLE DISTRIBUTION OF RECREATIONAL OPPORTUNITIES



The Carson City Master Plan seeks to continue providing a diverse range of park and recreational opportunities to include facilities and programming for all ages and varying interests to serve both existing and future neighborhoods.

Is or does the proposed development:

N/A Provide park facilities commensurate with the demand created and consistent with the City's adopted standards (4.1b, c)?

- ☒ Consistent with the Open Space Master Plan and Carson River Master Plan (4.3a)?

CHAPTER 5: ECONOMIC VITALITY



The Carson City Master Plan seeks to maintain its strong diversified economic base by promoting principles which focus on retaining and enhancing the strong employment base, include a broader range of retail services in targeted areas, and include the roles of technology, tourism, recreational amenities, and other economic strengths vital to a successful community.

Is or does the proposed development:

- Incorporating public facilities and amenities that will improve residents' quality of life (5.5e)?
- N/A Promote revitalization of the Downtown core (5.6a)?
- N/A Incorporate additional housing in and around Downtown, including lofts, condominiums, duplexes, live-work units (5.6c)?

CHAPTER 6: LIVABLE NEIGHBORHOODS AND ACTIVITY CENTERS



The Carson City Master Plan seeks to promote safe, attractive and diverse neighborhoods, compact mixed-use activity centers, and a vibrant, pedestrian-friendly Downtown.

Is or does the proposed development:

- Promote variety and visual interest through the incorporation of varied lot sizes, building styles and colors, garage orientation and other features (6.1b)?
- Promote variety and visual interest through the incorporation of well-articulated building facades, clearly identified entrances and pedestrian connections, landscaping and other features consistent with the Development Standards (6.1c)?
- Provide appropriate height, density and setback transitions and connectivity to surrounding development to ensure compatibility with surrounding development for infill projects or adjacent to existing rural neighborhoods (6.2a, 9.3b 9.4a)?
- If located in an identified Mixed-Use Activity Center area, contain the appropriate mix, size and density of land uses consistent with the Mixed-Use district policies (7.1a, b)?
- N/A If located Downtown:
 - Integrate an appropriate mix and density of uses (8.1a, e)?
 - Include buildings at the appropriate scale for the applicable Downtown Character Area (8.1b)?
 - Incorporate appropriate public spaces, plazas and other amenities (8.1d)?

CHAPTER 7: A CONNECTED CITY



The Carson City Master Plan seeks to promote a sense of community by linking its many neighborhoods, employment areas, activity centers, parks, recreational amenities and schools with an extensive system of interconnected roadways, multi-use pathways, bicycle facilities, and sidewalks.

Is or does the proposed development:

- ☒ Promote transit-supportive development patterns (e.g. mixed-use, pedestrian-oriented, higher density) along major travel corridors to facilitate future transit (11.2b)?
- ☒ Maintain and enhance roadway connections and networks consistent with the Transportation Master Plan (11.2c)?
- ☒ Provide appropriate pathways through the development and to surrounding lands, including parks and public lands, consistent with the Unified Pathways Master Plan (12.1a, c)?

Appendix C: Interim Mixed-Use Evaluation Criteria

PURPOSE:

The implementation of numerous policies contained within the Master Plan hinges on the creation of three mixed-use zoning districts to align with the Mixed-Use Commercial (MUC), Mixed-Use Employment (MUE), and Mixed-Use Residential (MUR) land use categories. Recognizing that mixed-use development proposals have already been and will continue to be submitted within these areas prior to the completion and adoption of the future mixed-use zoning districts, a set of Interim Mixed-Use Evaluation Criteria have been developed to:

- Facilitate higher intensity, mixed-use development in locations designated on the Land Use Plan for mixed-use development, but where mixed-use zoning is not currently in place;
- Encourage the incremental transition of existing uses in locations designated on the Land Use Plan for mixed-use development, recognizing that in some locations, mixed-use development may be perceived as incompatible with existing adjacent uses in the short term;
- Establish a consistent method for reviewing mixed-use development projects until mixed-use zone districts can be established; and
- Ensure that mixed-use development is consistent with the General Mixed-Use policies contained in the Master Plan, as well as with specific MUC, MUE, and MUR policies, as applicable.

The Interim Mixed-Use Evaluation Criteria will continue to be used as a tool to review mixed-use development proposals until mixed-use zone districts can be established.

MIXED-USE EVALUATION CRITERIA:

APPLICABILITY

The following Interim Mixed-Use Evaluation Criteria shall apply to all development proposed within the Mixed-Use Residential (MUR), Mixed-Use Commercial (MUC), and Mixed-Use Employment (MUE) land use categories. The application of these Criteria shall be triggered in one of the following ways:

- *Existing Zoning/Special Use Permit*—Development is proposed within a mixed-use land use category where the underlying zoning may permit the types and mix of uses proposed using

the Special Use Permit process as outlined in Section 18.02.80 of the City's Municipal Code. The Interim Mixed-Use Evaluation Criteria are applied in addition to the standard list of Findings outlined in the Code.

Example: If a mixed-use project (commercial/residential) were proposed within the Mixed-Use Commercial land use category on a property that is currently zoned for General Commercial, the residential portion of the project would be considered using the Special Use Permit process under the existing Code. Once the Master Plan is adopted, the project would also be subject to the Interim Mixed-Use Evaluation Criteria as part of the Special Use Permit Process.

- **Re-Zoning/Special Use Permit**—Development is proposed within a mixed-use land use category where the underlying zoning does not permit the types and mix of uses proposed. In this instance, the subject property would need to be re-zoned to the most appropriate zoning district and then followed for the project and combined with a Special Use Permit or Planned Unit Development request to allow the mix of uses desired and to trigger the application of the Interim Mixed-Use Evaluation Criteria.

Example: If a mixed-use project (commercial/residential) were proposed within the Mixed-Use Commercial land use category on a property that is currently zoned for Light Industrial, the residential portion of the project would not be eligible for consideration using the Special Use Permit process under the existing Code. Therefore, the subject property would need to be rezoned to General Commercial prior to beginning the Special Use Permit Process that would allow the residential portion of the project to be considered under the Interim Mixed-Use Evaluation Criteria.

- **Planned Unit Development (PUD)**—Development is proposed within a mixed-use land use category where the underlying zoning does not permit the types and mix of uses proposed. As an alternative to the Re-Zoning/Special Use Permit process outlined above, a Planned Unit Development request could be submitted for the subject property, within which it could be re-zoned to the most appropriate zoning district(s) for the project. As part of the PUD process, the Interim Mixed-Use Evaluation Criteria would be applicable all other conditions of approval outlined in the City's Municipal Code.

GENERAL INTENT

The Mixed-Use Evaluation Criteria provide an overview of key mixed-use development features that should be addressed by proposed mixed-use developments occurring to ensure they are consistent with Master Plan policies. They are intended to be used in conjunction with the land use specific review criteria that follow this section based on the applicable mixed-use land use designation.

MIX OF USES

Background and Intent:

Mixed-use developments should incorporate a variety of uses in a compact, pedestrian-friendly environment. Uses are encouraged to be mixed vertically ("stacked"), but may also be integrated horizontally. Recommended types and proportions of uses vary by mixed-use land use category and will also vary according to a project's location, size, and the surrounding development context. For example, a MUC development located on an individual parcel away from a primary street frontage may reasonably contain a higher percentage of residential development than one that is located with direct access and visibility from the primary street frontage. On some smaller parcels, integrating multiple uses may not be feasible at all, therefore, the consolidation of properties to create larger, mixed-use activity centers is encouraged. These factors should be considered and weighed in conjunction with the evaluation criteria listed below.

Evaluation Criteria:

CRITERIA	CRITERIA SATISFIED?	COMMENTS
1. Are the types of uses and percentages of different uses consistent with the relevant Master Plan policies listed below? (MUC 1.6, MUR 1.5, MUE 1.5)	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<p>The percentage of different uses is consistent with MUR1.5.</p> <p>The percentages are as follows:</p> <p>SF6 +/- 53% MFA +/- 15% GC +/- 11%</p>
2. Are activity generating uses (e.g., retail/commercial) concentrated along primary street frontages and in other locations where they may be easily accessed and may be readily served by transit in the future?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	<p>Access is provided to commercial uses from Drako Way & Morgan Mill Rd, approximately .2 miles south of Highway 50.</p> <p>The area can be readily served by transit if needed.</p>
3. Are large activity generating uses (e.g., retail/commercial) located so as to minimize impacts of loading areas and other facilities on existing neighborhoods?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	<p>Any development will meet the mixed-use criteria. There are no commercial development plans associated with this application.</p>
4. Are residential uses well-integrated with non-residential uses (either horizontally or vertically) and the surrounding development context?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<p>The proposed ZMA provides for well-integrated uses with General Commercial adjacent to existing industrial, MFA adjacent to GC, and SF6 adjacent to MFA and Open Space.</p>

5. Do the proposed housing types and densities promote activity and support non-residential uses in the development or in close proximity to the development, as applicable?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	The proposed development provides access to recreational trails, as well as general commercial zoning in close proximity to the single family and multifamily zoning.
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Relevant Master Plan Policies:

- Chapter 3: 2.1b, 2.3b, GMU 1.1, GMU 1.2, MUC 1.56, MUR 1.5, MUE 1.5
- Chapter 6: 7.2a, 7.2b

MIX OF HOUSING TYPES

Background and Intent:

Each of the mixed-use land use categories allow for the incorporation of a variety of housing as a part of a broader mix of uses. Although a mix of housing types and densities is encouraged within each category, the scale, size, type, and location of each development should play a significant role in determining what makes sense. For example, a 200 acre MUR development on a vacant parcel should generally contain a broader mix of housing types and densities than a 10 acre MUR development working within an established development context. However, the MUR development will likely have higher average densities due to its proximity to a primary street frontage and it's more urban context. Given the range of scenarios that may emerge, the evaluation criteria listed below are intentionally broad to allow for maximum flexibility.

Evaluation Criteria:

CRITERIA	CRITERIA SATISFIED?	COMMENTS
6. Does the development contain a mix of housing types that is compatible with the surrounding neighborhood and planned land use in terms of its scale and intensity?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	In terms of scale and intensity, the proposed development contains a mix of housing types that is compatible with a mixed-use residential neighborhood. The policy states that no one housing type should occupy more than 60% of the total land area. The proposed percentages are as follows: SF6 +/- 53% MFA +/- 15%
7. Does the development contain a mix of housing types that is appropriate to its scale, location, and land use category?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	The proposed development provides a mix of single-family and multi-family housing types which are appropriate for the scale, location and land use of the area. The proposed percentages are as follows: SF6 +/- 53% MFA +/- 15%

Relevant Master Plan Policies:

- Chapter 3: 2.2a, 2.2b
- Chapter 6: 8.1a

DENSITY RANGE

Background and Intent:

Average densities within mixed-use developments are generally expected to be higher than those typically found within the City today. Recognizing the many factors that influence the ultimate density of a mixed-use development (e.g., location, type), the Master Plan provides a suggested range of floor area ratios (FAR) and dwelling units/acre for each of the mixed-use land use categories. For the purposes of the evaluation criteria listed below, densities that fall below the low end of a density range for a particular land use category will be strongly discouraged in order to promote the Plan's objective of creating a more compact pattern of development. The Plan also acknowledges that there may be instances where densities that exceed the suggested range are appropriate in some locations, such as within a mixed-use activity center, provided other land use policies are followed. These instances will be evaluated on a project-by-project basis.

Evaluation Criteria:

CRITERIA	CRITERIA SATISFIED?	COMMENTS
8. Does the development achieve at least the minimum density range for the applicable land use category?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	For the SF portion, the minimum density required is per MUR 1.3 is 3 dwelling units per acre, and the proposed density is 3.97 du/acre. For the MFA portion, the minimum density required is 3 dwelling units per acre, and the conceptual density is 14.1 du/acre.
9. Does the development exceed the maximum density range for the applicable land use category?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	For the SF portion, the maximum permitted density per MUR 1.3 is 36 dwelling units per acre, and the proposed density is 3.97 du/acre. For the MFA portion, the maximum permitted density per MUR 1.3 is 36 dwelling units per acre, and the proposed density is 14.1 du/acre. Maximum permitted density in SF6 is 7.26 dwelling units per acre, and the proposed density is 3.97 du/acre. Maximum permitted density in MFA is 36 dwelling units per acre, and the proposed density is 3.97 dwelling units per acre.
10. If yes to #9 above, is the development located within a designated mixed-use activity center?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	
11. If yes to #9 above, is the largest concentration of density concentrated away from primary street frontages and surrounding neighborhoods?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	

Relevant Master Plan Policies:

- Chapter 3: MUC 1.3, MURI 1.3, MUE 1.3

CIRCULATION AND ACCESS

Background and Intent:

Mixed-use developments should be designed using an interconnected network of streets to provide efficient connections between uses and to accommodate vehicular, bicycle, and pedestrian circulation, as well as existing or future transit service. Direct vehicular and pedestrian connections to adjacent neighborhoods, commercial, and civic uses should be provided, as should linkages to existing and planned trail systems.

Evaluation Criteria:

CRITERIA	CRITERIA SATISFIED?	COMMENTS
12. Do vehicular and pedestrian ways provide logical and convenient connections between proposed uses and to adjacent existing or proposed uses?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	The street network has been designed to provide pedestrian connectivity between the proposed single family residential development and the commercial and multi-family areas. Sidewalks, recreation trails, and open space will be easily accessible from all areas of the development.
13. Does the hierarchy of perimeter and internal streets disperse development generated vehicular traffic to a variety of access points, discourage through traffic in adjacent residential neighborhoods and provide neighborhood access to on site uses?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Access is provided from Drako Way, Morgan Mill Rd. and new local roads that are proposed with the development.
14. If the development is located along a primary street frontage, have existing or proposed transit routes and stops been incorporated?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	No development is proposed relevant to this criteria.

Relevant Master Plan Policies:

Chapter 3: GMU 1.3, MUC 1.8

Chapter 7: 10.2b, 11.1a, 11.1c

PARKING LOCATION AND DESIGN

Background and Intent:

The visual and physical barriers created by surface parking areas should be minimized within mixed-use developments. To promote a more compact, pedestrian-friendly environment, off-street parking for mixed-use developments should be located behind buildings and away from primary street frontages. The use of on-street parking or shared parking to provide a portion of the required parking for mixed-use developments is strongly encouraged, where feasible, to make the most efficient use of each development site. In addition, structured parking is encouraged where viable, provided it is integrated into the design of the overall development.

Evaluation Criteria:

CRITERIA	CRITERIA SATISFIED?	COMMENTS
15. Is surface parking distributed between the side and rear of primary buildings and away from primary street frontages?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	No development is proposed relevant to this criteria.
16. Are larger parking lots organized as a series of smaller lots with clear pedestrian connections and landscape buffers as dividers?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	No development is proposed relevant to this criteria.
17. Is surface parking screened from surrounding neighborhoods and pedestrian walkways?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	No development is proposed relevant to this criteria.
18. Is structured parking integrated with adjacent structures in terms of its design and architectural character?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	No development is proposed relevant to this criteria.
19. Are structured parking facilities "wrapped" with retail or residential uses at the street level to provide a more inviting pedestrian environment?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	No development is proposed relevant to this criteria.

Relevant Master Plan Policies:

- Chapter 3: GMU 1.4, MUC 1.8

RELATIONSHIP TO SURROUNDING DEVELOPMENT

Background and Intent:

Many of the areas designated for mixed-use development are located within established areas of the City. As a result, much of the mixed-use development that occurs will occur through a combination of infill and redevelopment. Therefore, establishing a strong physical and visual relationship to adjacent neighborhoods and the community will be an important consideration.

Evaluation Criteria:

CRITERIA	CRITERIA SATISFIED?	COMMENTS
20. Are transitions in building massing and height provided to relate to surrounding development patterns?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	No development is proposed relevant to this criteria.
21. Is the new development well-integrated into the surrounding neighborhood, rather than "walled off", consistent with the mixed-use policies contained in the Master Plan?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Individual pods of development are not walled off, and the proposed development is integrated through the proposed circulation and access to adjacent undeveloped land. The proposed development includes appropriate zoning designations between uses by providing well-integrated uses with General Commercial adjacent to existing industrial, MFA adjacent to GC, and SF6 adjacent to MFA and Open Space.
22. If applicable, are lower intensity uses (e.g., residential) located along the periphery of the site where it adjoins an existing residential neighborhood to provide a more gradual transition in scale and mass and to minimize potential impacts of non-residential uses (e.g., loading areas, surface parking)?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	The proposed development is not adjacent to or adjoining an existing residential neighborhood.

Relevant Master Plan Policies:

- Chapter 3: MUC 1.7, MUR 1.7, MUE 1.6
- Chapter 6: 8.3b

PUBLIC SPACES, PARKS, OPEN SPACE, AND PATHWAYS

Background and Intent:

Mixed-use developments should be organized around a central gathering space or series of spaces, such as small urban plazas, pocket parks, or active open space areas. These types of public spaces

serve as urban recreational amenities for residents that may not have access to larger community parks or recreational amenities without getting in their cars and generally promote increased levels of pedestrian activity. Larger mixed-use developments, particularly within the MUR and MUE categories, may also need to incorporate more traditional recreational features, such as parks and trails, depending upon their size and location.

Evaluation Criteria:

CRITERIA	CRITERIA SATISFIED?	COMMENTS
23. Does the development provide public spaces to serve residents and the larger community?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Public spaces to serve residents are incorporated with the undisturbed open space accessible by residents. Development of the GC and MFA portions will be in conformance with the mixed use policies.
24. Are public spaces appropriate in terms of their size and active vs. passive features provided given the scale and location of the proposed development?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Public spaces to serve residents are incorporated with the undisturbed open space accessible by residents. Development of the GC and MFA portions will be in conformance with the mixed use policies.
25. Are public spaces easily accessible to pedestrians and the surrounding community, if applicable?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	Public spaces to serve residents are incorporated with the undisturbed open space accessible by residents. Development of the GC and MFA portions will be in conformance with the mixed use policies.
26. Are parks and trails provided consistent with the Parks, Recreation, and Unified Pathways Master Plan?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	The project area was not included in the 2006 Carson City Parks and Recreation master plan's Neighborhood Park Analysis because the property was zoned industrial at the time. The Parks and Recreation Commission plans to review the project and provide an opportunity for public input regarding recreational needs, opportunities, and use characteristics for any parks and recreation components.

Relevant Master Plan Policies:

- Chapter 3: MUC 1.6, MUR 1.8, MUE 1.7

TENTATIVE MAP FOR PLATEAU DEVELOPMENT

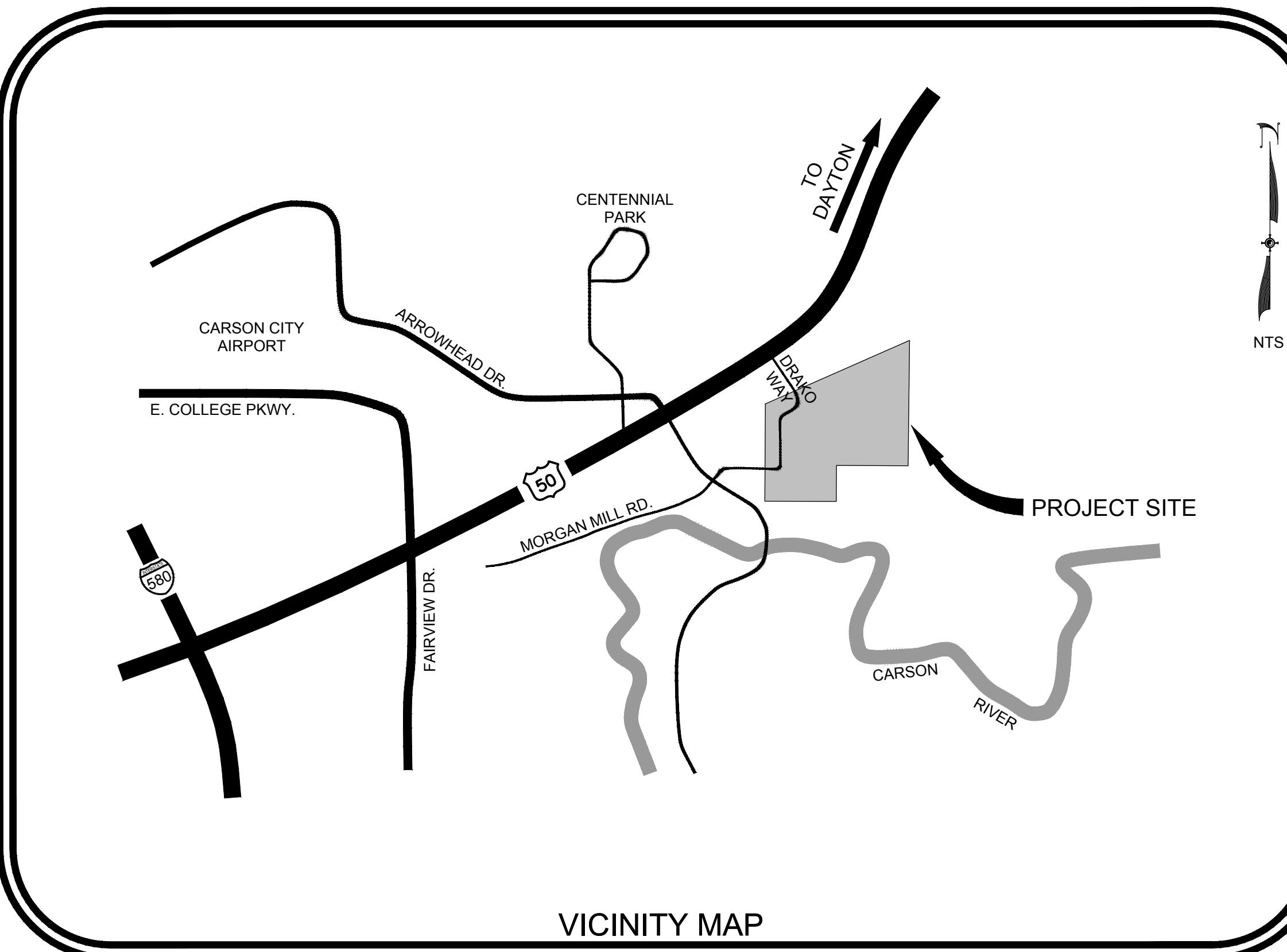
CARSON CITY NEVADA

OWNER

TAHOE IV LLC (MR. KEITH SERPA)
P.O. BOX 1724
CARSON CITY, NEVADA 89702
VOICE: (775) 267-9510 EXT. 204

BASIS OF BEARINGS

MODIFIED NEVADA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NORTH AMERICAN DATUM OF 1983/1994 (NAD 83/94) DETERMINED USING REAL TIME KINEMATIC GPS (RTK GPS) OBSERVATIONS OF CARSON CITY CONTROL MONUMENTS CCO45 and X357 AS SHOWN ON RECORD OF SURVEY MAP No. 2749 RECORDED AUGUST 11, 2010 IN THE OFFICIAL RECORDS OF CARSON CITY, NEVADA, AS FILE No. 403425. COMBINED GRID TO GROUND FACTOR = 1.0002. ALL DISTANCES SHOWN HEREIN ARE GROUND VALUES.

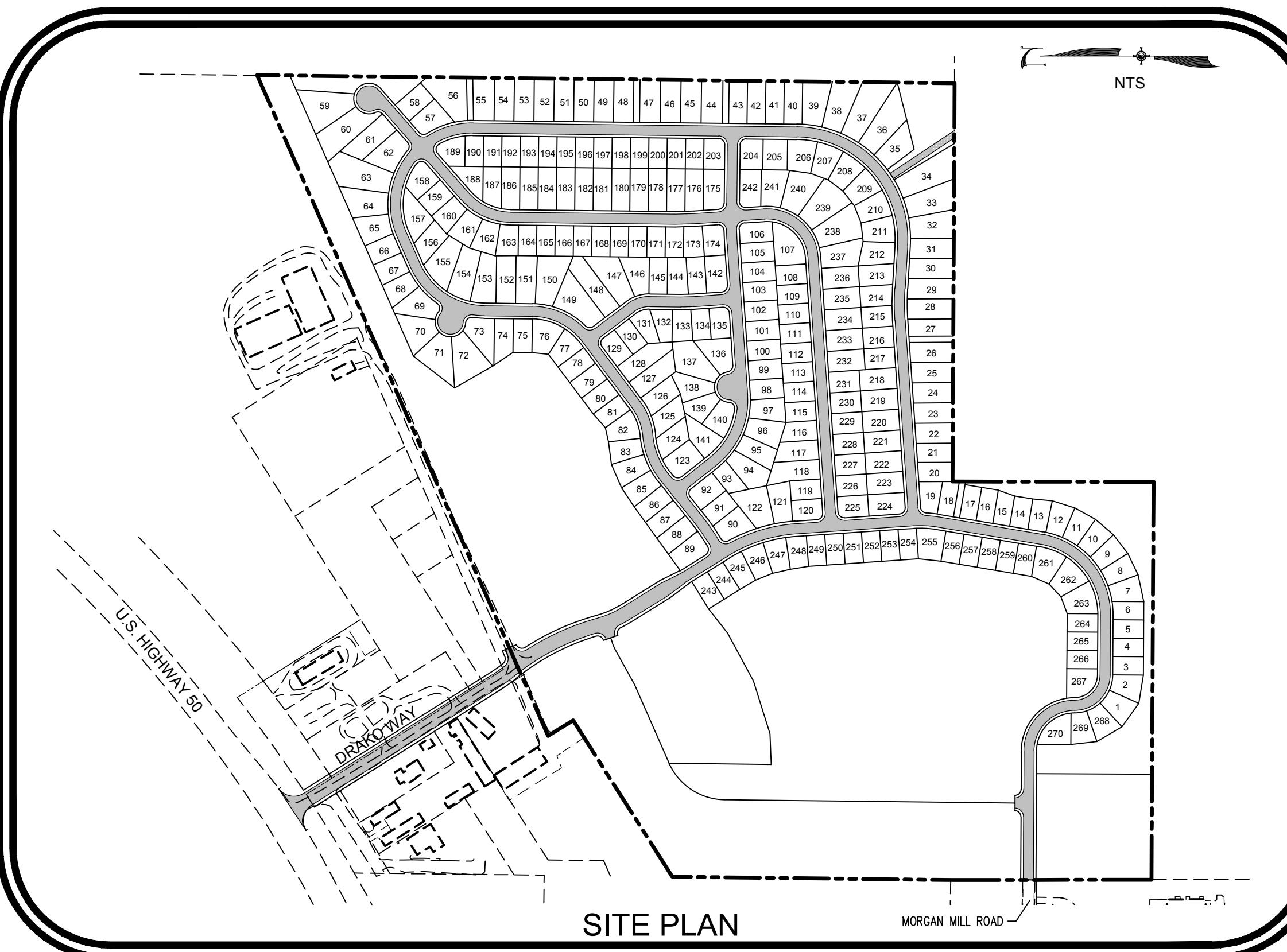


BASIS OF ELEVATION

NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29), AS TAKEN FROM NEVADA DEPARTMENT OF TRANSPORTATION (NDOT) CONTROL MONUMENT X357, HAVING A PUBLISHED ELEVATION OF 4817.67 FEET. X357 IS DESCRIBED AS A FOUND USC AND GS BENCH MARK DISK, IN A ROCK OUTCROP, STAMPED "X 357 1953". LOCATED 4.8 MILES NORTHEAST ALONG U.S. HIGHWAY 50 FROM CARSON CITY, ON THE SOUTHWEST SLOPE OF A ROCK COVERED HILL, IN THE TOP OF THE APPROXIMATE CENTER OF A 3 FOOT BY 3 FOOT BLACK VOLCANIC ROCK, 129 FEET NORTHEAST OF THE SOUTHWEST END OF A CUT, ABOUT 14.8 FEET HIGHER THAN THE HIGHWAY.

ABBREVIATIONS

±	APPROXIMATE
AC	ASPHALTIC CONCRETE
AP	ANGLE POINT
AWWA	AMERICAN WATER WORKS ASSOCIATION
BC	BEGIN CURVE
BW	BACK OF WALK
BVC	BEGIN VERTICAL CURVE
CAP	CAPACITY
CB	CATCH BASIN
CFS	CUBIC FEET PER SECOND
CL	CENTERLINE
CMP	CORRUGATED METAL PIPE
CO	CLEANOUT
CONC	CONCRETE
CMU	CONCRETE MASONRY UNIT
CONST	CONSTRUCT
CP	CONCRETE PIPE
CR	CURB RETURN
DET	DETAIL
Δ	CURVE DELTA
Ø	DIAMETER
DI	DROP-INLET
DWY	DRIVEWAY
DR	DIAMETER RATIO
E	ELECTRICAL
EC	END OF CURVE
EG	EXISTING GRADE
ELEV	ELEVATION
EVC	END OF VERTICAL CURVE
(e)	EXISTING
EXIST	EXISTING
FES	FLARE END SECTION
FFT	FLAMED FLOOR
FDC	FIRE DEPARTMENT CONNECTION
FFC	FRONT FACE OF CURB
FG	FINISHED GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FT	FEET
G	GAS
GB	GRADE BREAK
HORIZ	HORIZONTAL
HP	HIGH POINT
HS	HOUSE SERVICE
IE	INVERT ELEVATION
INT	INTERSECTION
L	LENGTH
LF	LINEAL FEET
LP	LOW POINT
LT	LEFT
MH	MANHOLE
MDD	MAX DRY DENSITY
NTS	NOT TO SCALE
OD	OUTSIDE DIAMETER
PCC	PORTLAND CEMENT CONCRETE
PF	PUBLIC FACILITY
PL	PROPERTY LINE
PM	PARCEL MAP
POT	POINT OF TANGENT
PR	PRESSURE RATING
PSI	POUNDS PER SQUARE INCH
PUE	PUBLIC-UTILITY EASEMENT
PVC	POLYVINYL CHLORIDE PIPE
PVI	POINT OF VERTICAL INTERSECTION
Q	VOLUME FLOW RATE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
REF	REFERENCE
RET	CURB RETURN
REQ	REQUIRED
RT	RIGHT
R/W	RIGHT OF WAY
S	SLOPE
SD	STORM DRAIN
SDMH	STORM DRAIN MANHOLE
SF	SQUARE FEET
SS	SANITARY SEWER
SSMH	SANITARY SEWER MANHOLE
SUB	SUBDRAIN
SW	SIDEWALK
T	TRANSFORMER
t	TELEPHONE
TBC	TOP BACK OF CURB
TC	TOP OF CURB
TOP	TOP OF STEP
TP	TEST PIT
TW	TOP OF WALL
TYP	TYPICAL
VC	VERTICAL CURVE
VG	VALLEY GUTTER
VERT	VERTICAL
VPI	VERTICAL POINT OF INTERSECTION
W	WATER
WM	WATER MAIN



Manhard
CONSULTING LTD

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Civil Engineers • Surveyors • Water Resource Engineers • Water & Wastewater Engineers
Construction Managers • Environmental Scientists • Landscape Architects • Planners

SHEET INDEX

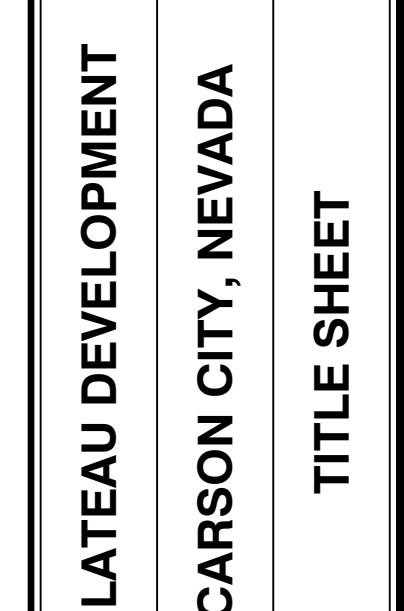
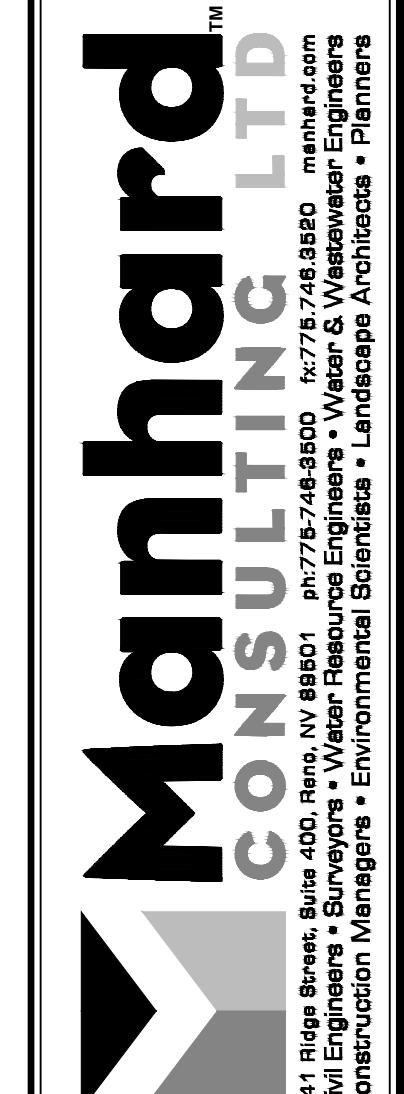
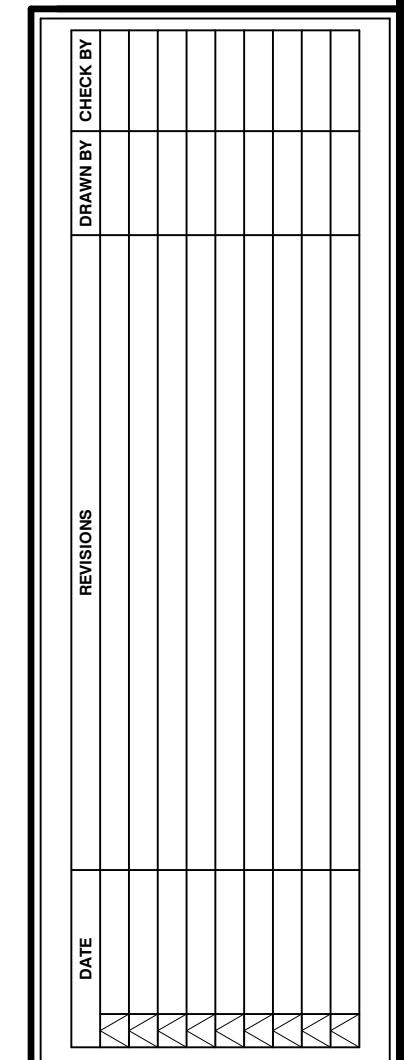
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S1 PRELIMINARY SITE PLAN
S2 PRELIMINARY SITE PLAN
S3 PRELIMINARY SITE PLAN
S4	..... PRELIMINARY SITE PLAN
G1	..... PRELIMINARY GRADING PLAN
G2	..... PRELIMINARY GRADING PLAN
G3	..... PRELIMINARY GRADING PLAN
G4	..... PRELIMINARY GRADING PLAN
U1	..... PRELIMINARY UTILITY PLAN
U2	..... PRELIMINARY UTILITY PLAN
U3	..... PRELIMINARY UTILITY PLAN
U4	..... PRELIMINARY UTILITY PLAN

UTILITY PROVIDERS

CABLE TV:	..... CHARTER SPECTRUM
ELECTRIC:	..... NV ENERGY
GAS:	..... SOUTHWEST GAS
SEWER:	..... CARSON CITY PUBLIC WORKS
SOLID WASTE: CAPITOL SANITATION
TELEPHONE: A.T.T.
WATER: CARSON CITY PUBLIC WORKS

PROJECT DATA

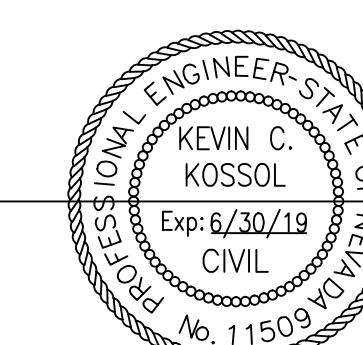
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LOT AREA: 50.7 ACRES
RIGHT-OF-WAY AREA: 14.3 ACRES
REMAINDER PARCELS: 31.1 ACRES
COMMON AREA:	..... 23.0 ACRES
TOTAL LOTS:	..... 270
MIN. LOT SIZE:	..... 6,000 S.F.
MAX. LOT SIZE: 17,950 S.F.
AVERAGE LOT SIZE: 8,180 S.F.
EXISTING ZONING: GENERAL INDUSTRIAL



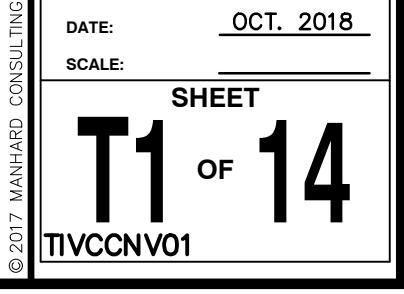
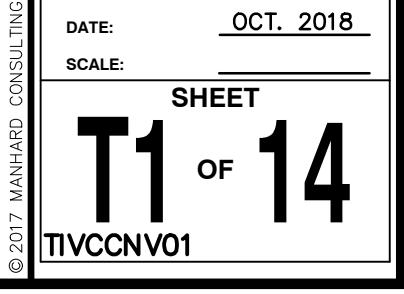
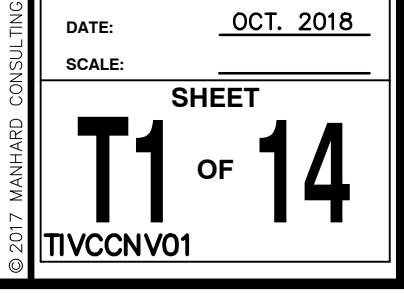
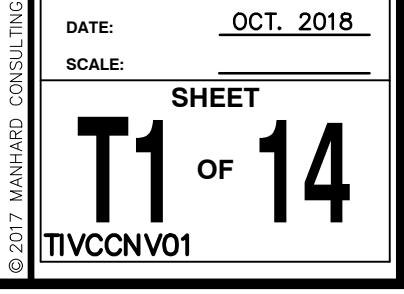
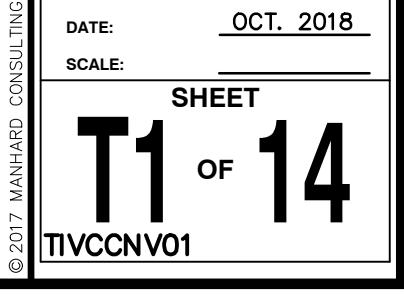
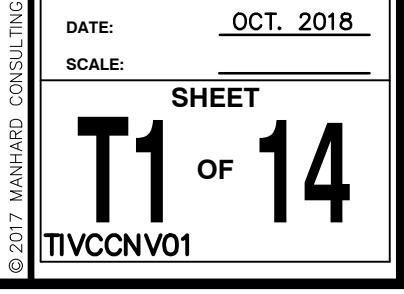
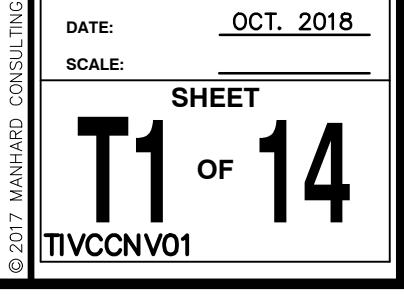
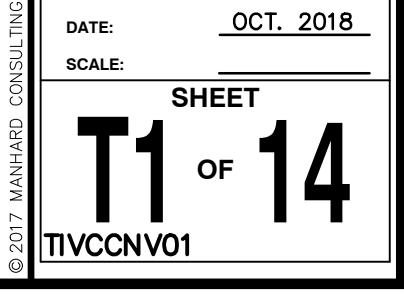
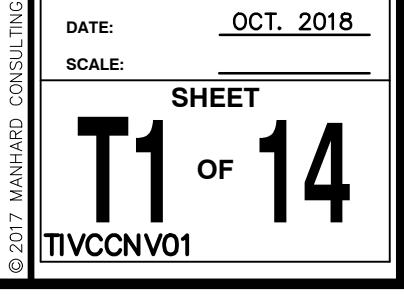
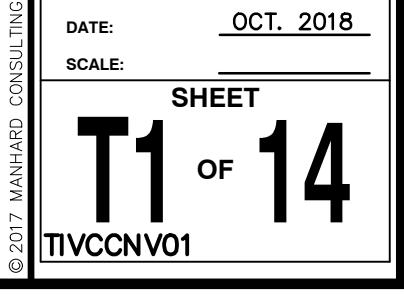
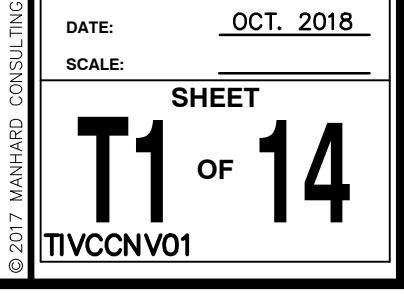
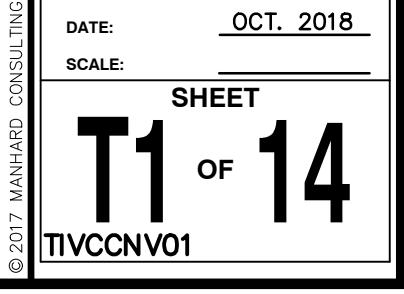
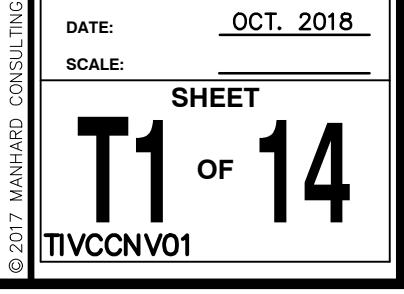
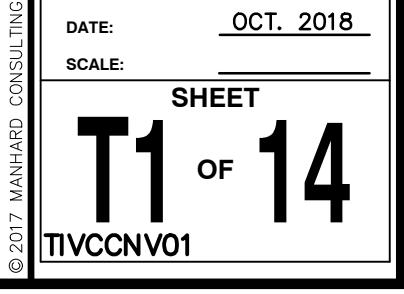
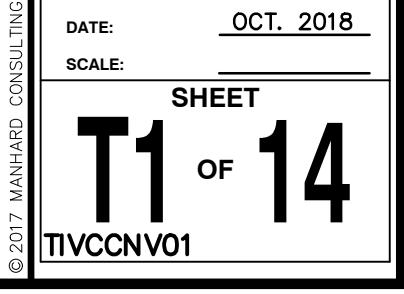
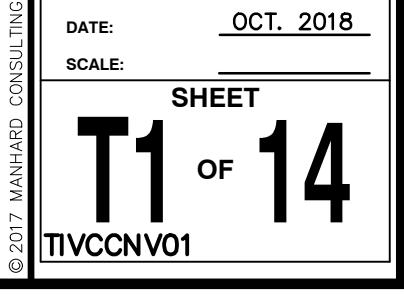
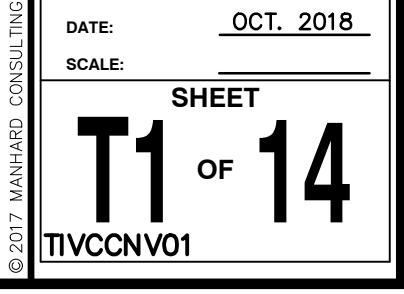
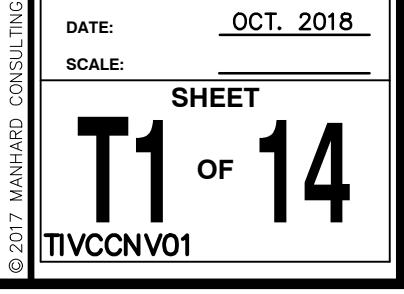
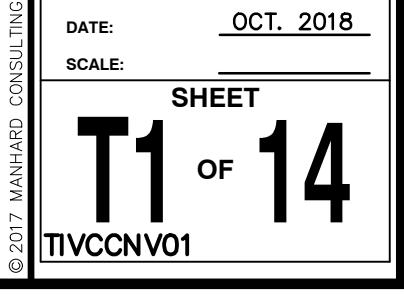
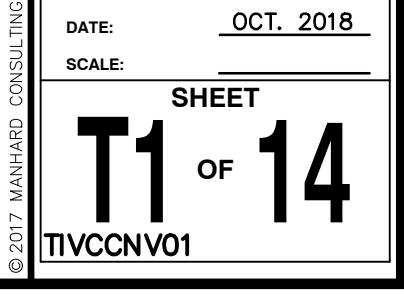
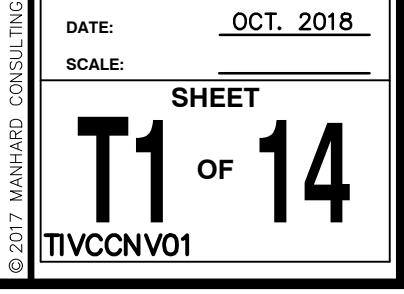
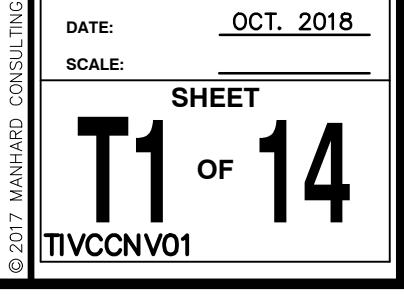
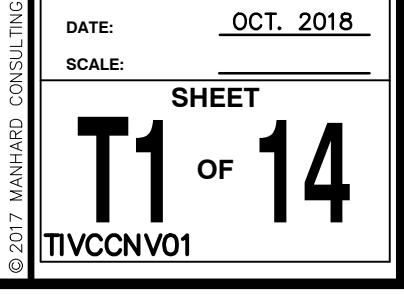
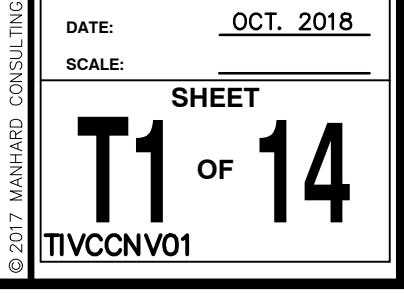
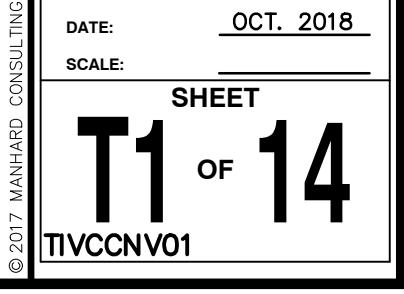
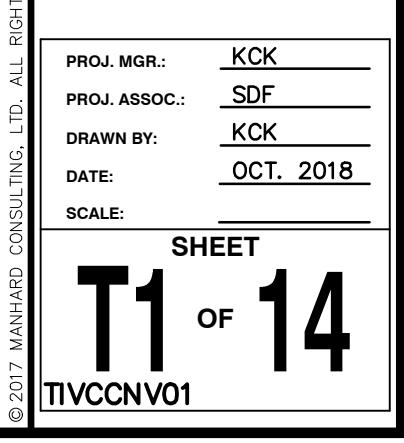
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
I, KEVIN C. KOSSOL, DO HEREBY CERTIFY THAT THESE PLANS HAVE BEEN PREPARED IN ACCORDANCE WITH ACCEPTED ENGINEERING PROCEDURES AND GUIDELINES, AND ARE IN SUBSTANTIAL COMPLIANCE WITH APPLICABLE STATUTES, COUNTY ORDINANCES, AND CODES. IN THE EVENT OF CONFLICT BETWEEN ANY PORTION OF THESE PLANS AND COUNTY CODES, THE COUNTY CODES SHALL PREVAIL.


KEVIN C. KOSSOL





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





















TRAFFIC IMPACT STUDY

FOR

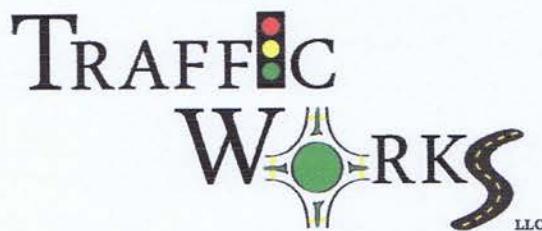
Plateau Development

October 19, 2018

PREPARED FOR:

Manhard Consulting, Ltd.

PREPARED BY:



YOUR QUESTIONS ANSWERED QUICKLY

Why did you perform this study?

This Traffic Impact Study evaluates the potential traffic impacts associated with the proposed Plateau Development in Carson City, Nevada. 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?

The project consists of 270 single family residential units, 250 multifamily residential units, 12,000 square feet of office space, 12,000 square feet of retail space, and 300 self-storage units. The project site is located on approximately 100 acres south of US 50 and east of Deer Run Road, near Drako Way and Morgan Mill Road.

How much traffic will the project generate?

The project is anticipated to generate 5,003 Daily, 344 AM peak hour, and 473 PM peak hour trips.

Are there any traffic impacts?

The US 50/Drako Way intersection is anticipated to operate at LOS F under Existing Plus Project and Cumulative Plus Project conditions unless improvements are made.

Are any improvements recommended?

A traffic signal at the US 50/Drako Way intersection would improve operations to acceptable levels of service during the AM and PM peak hours. The intersection is expected to meet Four-Hour and Peak Hour signal warrant criteria based on Existing Plus Project and Cumulative Plus Project traffic volumes. Additionally, NDOT signal spacing requirements would be met based on the distance to Deer Run Road (the closest existing traffic signal). A traffic signal, funded by the applicant, should be advanced to the design stage with specific details to be addressed in coordination with the Nevada Department of Transportation (NDOT).

LIST OF FIGURES

1. Project Location
2. Project Site Plan
3. Existing Lane Configurations, Controls, and Traffic Volumes
4. Project Trip Distribution
5. Existing Plus Project Lane Configurations, Controls, and Traffic Volumes
6. Cumulative No Project Lane Configurations, Controls, and Traffic Volumes
7. Cumulative Plus Project Lane Configurations, Controls, and Traffic Volumes

LIST OF APPENDICES

- A. Level of Service Calculations Sheets

INTRODUCTION

This report summarizes the results of a Traffic Impact Analysis completed to assess the potential impacts to the local roadway network associated with the Plateau Development project in Carson City, Nevada. This Traffic Impact Study has been prepared to describe existing traffic conditions, identify potential transportation related impacts, document findings, and make recommendations to mitigate impacts, if any are found.

Study Area and Evaluated Scenarios

The proposed project is located south of US 50 and east of Deer Run Road, near Drako Way and Morgan Mill Road in Carson City, Nevada. The project location is shown on **Figure 1** and the project site plan is shown on **Figure 2**.

The following intersections are included in the analysis:

- US 50 / Drako Way
- US 50 / Deer Run Road / Arrowhead Drive
- Deer Run Road / Morgan Mill Road

The existing study intersection lane configurations and traffic controls are shown on **Figure 3**, attached.

This study includes analysis of the weekday AM and PM peak hours as these are the periods of time in which the project is expected to generate the most traffic. The evaluated development scenarios are:

- Existing Conditions (no project)
- Existing Plus Project Conditions
- Cumulative No Project Conditions
- Cumulative 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 delay per vehicle at intersections to letter grades "A" through "F" with "A" representing optimum conditions and "F" representing breakdown or over capacity flows.

Intersections

Intersection level of service methodology is established in the *Highway Capacity Manual (HCM) 2010*, published by the Transportation Research Board. The methodology for signalized intersections determines the level of service by comparing the average control delay for the overall intersection to the delay thresholds in **Table 1**. Level of service at unsignalized (side-street stop controlled) intersections is

determined by comparing the average control delay for the worst movement/approach to the delay thresholds in **Table 1**.

Table 1: Level of Service Definition for Intersections

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

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

Level of service calculations were performed using the Synchro 9 software package with results reported in accordance with the current *HCM 2010* methodology.

Level of Service Policies

Carson City

Carson City Municipal Code states:

A traffic LOS D or better...shall be maintained through mitigation of impacts from all conditions on all city maintained arterial and collector roads and at city road intersections, except as noted in the Carson City master plan.¹

Nevada Department of Transportation

The Nevada Department of Transportation (NDOT) *Traffic Impact Study Requirements* publication states:

Level of Service "C" will be the design objective for capacity and under no circumstances will less than Level of Service "D" be accepted for site and non-site traffic.

Hence, LOS "D" has been used as the criteria for the study intersections.

¹ Carson City Municipal Code 12.13.3.5.a accessed on August 27, 2018 at library.municode.com/nv/carson_city/codes

EXISTING CONDITIONS

Roadway Facilities

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

US Highway 50 (US 50) is a four-lane highway with a two-way left-turn lane near the project site. In the project area, US 50 connects Lake Tahoe to the west and Fallon to the east. The posted speed limit on US 50 adjacent to the project site is 55 mph.

Deer Run Road is a two-lane roadway with a two-way left-turn lane south of US 50. The roadway serves primarily commercial and industrial uses and has a posted speed limit of 25 mph. North of US 50, the opposing roadway is called Arrowhead Drive.

Drako Way is an unstriped, low volume, local roadway that extends south of US 50. South of Astro Drive, Drako Way is a dirt road.

Traffic Volumes

Existing AM (7:00 AM to 9:00 AM) and PM (4:00 PM to 6:00 PM) peak hour turning movement volumes were collected at the study intersections on a mid-week day in August 2018. **Figure 3** shows the existing intersection turning movement volumes at the study intersections.

Intersection Level of Service Analysis

Existing conditions intersection level of service analysis was performed using Synchro 9 software, with reports based on *HCM 2010* methodology. The peak hour factors (PHF) and heavy vehicle percentages from the existing counts were used in the analysis. The level of service results are presented in **Table 2** and the calculation sheets are provided in **Appendix A**, attached.

Table 2: Intersection Level of Service – Existing Conditions

Intersection	Control	Approach/ Movement	AM		PM	
			Delay ¹	LOS	Delay ¹	LOS
US 50/Drako Way	Side Street Stop	Northbound Approach	26.2	D	45.7	E
		Westbound Left	10.0	A	21.1	C
US 50/Deer Run Rd	Signal	Overall	14.2	B	27.4	C
Deer Run Rd/ Morgan Mill Rd	Side Street Stop	Eastbound Approach	9.2	A	9.5	A
		Westbound Approach	8.7	A	8.9	A
		Northbound Left	7.3	A	7.3	A
		Southbound Left	7.3	A	7.3	A

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

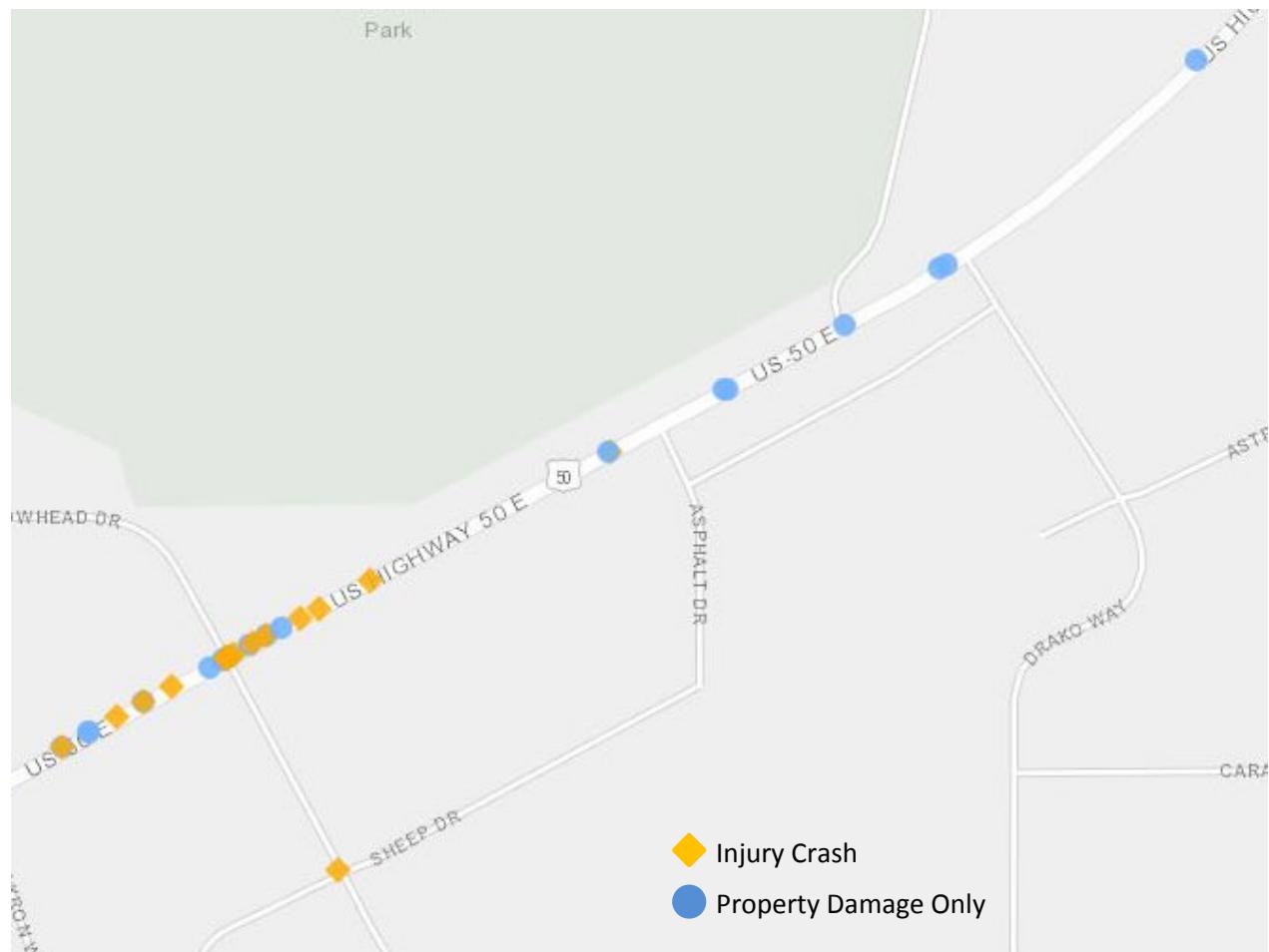
Source: Traffic Works, 2018

As shown in the table, the northbound movement of the US 50/Drako Way intersection currently operates at LOS E (worse than the policy LOS D) during the PM peak hour. The other study intersections operate at acceptable levels of service.

Crash Analysis

The Nevada Department of Transportation's online Traffic Safety App was utilized to access crash data for the study area during 2015, 2016, and 2017 (the most recent three-year period available). Thirty-six (36) crashes were identified on US 50 in the vicinity of the study intersections, shown on **Exhibit 1** below. Of these, 17 resulted in at least one injury and 19 resulted in property damage only. Twenty-two (22) crashes were rear-end collisions on US-50 and six (6) were angle crashes. Other than a high occurrence of rear-end collisions, there does not appear to be a discernible pattern for these crashes.

Exhibit 1: Crash Data (2015 – 2017)



Source: <https://ndot.maps.arcgis.com>

PROJECT CONDITIONS

Project Description

The proposed Plateau Development project is anticipated to include 270 single family residential units, 250 multifamily residential units, 12,000 square feet of office space, 12,000 square feet of retail space, and 300 self-storage units. The project site is located on approximately 100 acres south of US 50 and east of Deer Run Road, near Drako Way and Morgan Mill Road.

Project Access

Two access locations are proposed with the project, as shown on **Figure 2**. The primary access would be located at the US 50/Drako Way intersection. A second project access would be provided via a connection to Morgan Mill Road to Deer Run Road.

Trip Generation

Trip generation estimates for the proposed project were calculated based on average trip rates presented in the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 10th Edition*. Given the mix of land uses (residential, retail, and office) it is likely that a small amount of internal capture (i.e. trips between project land uses that do not access the outside roadway network) will occur; however, it is expected to be a small amount. Therefore, to present a conservative analysis, internal capture and pass-by reductions were not included. **Table 3** provides the Daily, AM, and PM peak hour trip generation estimates for the proposed project. As shown in the table, the project is anticipated to generate 5,003 Daily, 344 AM peak hour, and 473 PM peak hour trips.

Table 3: Project Trip Generation Estimates

Land Use (ITE Land Use Code)	Size ¹	Trips ²				
		Daily	AM	AM In/Out	PM	PM In/Out
Single Family Housing (210)	270 du	2,549	200	50 / 150	267	168 / 99
Multifamily Housing (220)	250 du	1,830	115	26 / 89	140	88 / 52
General Office Building (710)	12 ksf	117	14	12 / 2	14	2 / 12
Shopping Center (820)	12 ksf	453	11	7 / 4	46	22 / 24
Mini-Warehouse (151)	300 units	54	4	2 / 2	6	3 / 3
Total Trips		5,003	344	97 / 247	473	283 / 190

Notes: 1. du = dwelling units; ksf = 1,000 square feet

2. Trips calculated based on the following rates:

- Single Family Residential: Daily – 9.44 trips per du; AM – 0.74 trips per du (25% in/75% out); PM – 0.99 trips per du (63% in/37% out)
- Multifamily Residential: Daily – 7.32 trips per du; AM – 0.46 trips per du (23% in/77% out); PM – 0.56 trips per du (63% in/37% out)
- Office: Daily – 9.74 trips per ksf; AM – 1.16 trips per ksf (86% in/14% out); PM – 1.15 trips per du (16% in/84% out)
- Shopping Center: Daily – 37.75 trips per ksf; AM – 0.94 trips per ksf (62% in/38% out); PM – 3.81 trips per ksf (48% in/52% out)
- Mini-Warehouse: Daily – 17.96 trips per 100 units; AM – 1.39 trips per 100 units (51% in/49% out); PM – 1.95 trips per 100 units (50% in/50% out)

Source: Traffic Works, 2018

Trip Distribution

Project generated traffic was distributed to the surrounding roadway network based on the location of the project in relation to complimentary land uses, major activity centers, and local roadway connections. The following trip distribution percentages were used:

- 75% to/from west on US 50 toward Carson City
- 5% to/from north on Arrowhead Drive
- 20% to/from east on US 50 toward Dayton and USA Parkway (TRIC Industrial Park)

The project trip distribution and assignment are shown on **Figure 4**.

EXISTING PLUS PROJECT CONDITIONS

Traffic Volumes

Existing Plus Project traffic volumes were developed by adding the project generated trips (**Figure 4**) to the existing traffic volumes (**Figure 3**) and are shown on **Figure 5**, attached.

Intersection Level of Service

Existing Plus Project intersection level of service analysis was performed using Synchro 9 software. The Existing Plus Project traffic volumes shown on **Figure 5**, as well as the existing peak hour factors and heavy vehicle percentages were used in the analysis. **Table 4** shows the level of service results and the calculation sheets are provided in **Appendix A**.

Table 4: Intersection Level of Service – Existing Plus Project Conditions

Intersection	Control	Approach/ Movement	Existing				Existing Plus Project			
			AM		PM		AM		PM	
			Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS
US 50/Drako Way	Side Street Stop	Northbound Approach	26.2	D	45.7	E	143.0	F	405.9	F
		Westbound Left	10.0	A	21.1	C	10.2	B	25.5	D
US 50/Deer Run Rd	Signal	Overall	14.2	B	27.4	C	21.9	C	33.4	C
Deer Run Rd/ Morgan Mill Rd	Side Street Stop	Eastbound Approach	9.2	A	9.5	A	10.3	B	12.8	B
		Westbound Approach	8.7	A	8.9	A	8.9	A	9.2	A
		Northbound Left	7.3	A	7.3	A	7.3	A	7.3	A
		Southbound Left	7.3	A	7.3	A	7.4	A	7.5	A

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

Source: Traffic Works, 2018

As shown in Table 4, the northbound approach of the US 50/Drako Way intersection is expected to operate at LOS F during the AM and PM peak hours. The existing volumes on US 50 are high enough to effectively prohibit northbound left-turns from the project unless improvements are made. The remaining study intersections are expected to operate at acceptable levels of service with the project.

Recommended Improvements

The US 50/Drako Way intersection is expected to operate at LOS F with the proposed project. A traffic signal at this intersection would improve operations to acceptable levels (LOS A) during the AM and PM peak hours.

The *Manual on Uniform Traffic Control Devices* (MUTCD) published by the Federal Highway Administration (FHWA) presents signal warrant analysis methodology to assist in determining if a traffic signal is warranted at an intersection. The *MUTCD* includes two versions of the Four-Hour Warrant criteria. The 70% Factor Warrant is to be used for communities with a population of less than 10,000 or a speed limit above 40 mph on the major street. The US 50/Drako Way intersection meets this criteria with a speed limit of 55 mph on US 50.

Table 5 shows the results of the Four-Hour Signal Warrant analysis (70% Factor) at the US 50/Drako Way intersection based on Existing Plus Project traffic volumes. “Hour 2” of the AM and PM peak hours was determined based on the existing traffic count data (which is collected for two hours during the morning and two hours during the evening). The project trips during “Hour 2” were calculated assuming 75 percent of the “Hour 1” peak hour volumes.

Table 5: Four-Hour Traffic Signal Warrant Analysis – Existing Plus Project Conditions

Intersection	# of Lanes (Major Street/ Minor Street)	AM Peak Hour						PM Peak Hour					
		Hour 1			Hour 2 ¹			Hour 1			Hour 2 ¹		
		Major Street Volume	Minor Street Volume	Warrant Met?	Major Street Volume	Minor Street Volume	Warrant Met?	Major Street Volume	Minor Street Volume	Warrant Met?	Major Street Volume	Minor Street Volume	Warrant Met?
US 50/ Drako Way	2 / 1	2,481	170	Yes	1,814	134	Yes	2,945	139	Yes	2,660	106	Yes

Notes: 1. The project trip generation during the second AM and PM peak hours was calculated assuming 75 percent of the first peak hour volumes.

Source: Traffic Works, 2018

As shown in the table, the signal warrant criteria are easily met during four hours of the day. Note that the threshold volume on the minor street approach must exceed 60 vehicle per hour on a single-lane approach or 80 vehicles per hour on a two-lane approach. The Four-Hour volume signal warrant is met.

CUMULATIVE CONDITIONS

Traffic Volumes

Future year (2040) traffic volumes were developed based on projected growth in the area. Population projections for the year 2040 show a growth of approximately 0.54 percent per year. This rate was applied to the existing traffic volumes for a period of 22 years (2018 to 2040) to develop future year traffic volume forecasts. The 2040 traffic volumes at the study intersections are shown on **Figure 6**.

Intersection Level of Service

Cumulative No Project conditions intersection level of service analysis was performed using Synchro 9 software, with reports based on *HCM 2010* methodology. The peak hour factors (PHF) and heavy vehicle percentages from the existing counts were used in the analysis. The level of service results are presented in **Table 6** and the calculation sheets are provided in **Appendix A**, attached.

Table 6: Intersection Level of Service – Cumulative Conditions

Intersection	Control	Approach/ Movement	AM		PM	
			Delay¹	LOS	Delay¹	LOS
US 50/Drako Way	Side Street Stop	Northbound Approach	30.4	D	61.7	F
		Westbound Left	10.5	B	25.2	C
US 50/Deer Run Rd	Signal	Overall		20.5	C	36.6
Deer Run Rd/ Morgan Mill Rd	Side Street Stop	Eastbound Approach	9.3	A	9.7	A
		Westbound Approach	8.7	A	8.9	A
		Northbound Left	7.3	A	7.3	A
		Southbound Left	7.4	A	7.3	A

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

Source: Traffic Works, 2018

As shown in the table, the northbound approach of the US 50/Drako Way intersection is expected to operate at LOS F during the PM peak hour without the project. The remaining study intersections are expected to operate at acceptable levels of service.

CUMULATIVE PLUS PROJECT CONDITIONS

Traffic Volumes

Cumulative Plus Project traffic volumes were developed by adding the project generated trips (**Figure 4**) to the Cumulative No Project traffic volumes (**Figure 6**) and are shown on **Figure 7**, attached.

Intersection Level of Service

Cumulative Plus Project intersection level of service analysis was performed using Synchro 9 software. The Cumulative Plus Project traffic volumes shown on **Figure 7**, as well as the existing peak hour factors and heavy vehicle percentages were used in the analysis. **Table 7** shows the level of service results and the calculations sheets are provided in **Appendix A**.

Table 7: Intersection Level of Service – Cumulative Plus Project Conditions

Intersection	Control	Approach/ Movement	Cumulative				Cumulative Plus Project			
			AM		PM		AM		PM	
			Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS	Delay ¹	LOS
US 50/Drako Way	Side Street Stop	Northbound Approach	30.4	D	61.7	F	221.4	F	662.3	F
		Westbound Left	10.5	B	25.2	C	10.7	B	32.5	D
US 50/Deer Run Rd	Signal	Overall	20.5	C	36.6	D	36.5	D	49.4	D
Deer Run Rd/ Morgan Mill Rd	Side Street Stop	Eastbound Approach	9.3	A	9.7	A	10.5	B	13.2	B
		Westbound Approach	8.7	A	8.9	A	8.9	A	9.2	A
		Northbound Left	7.3	A	7.3	A	7.3	A	7.3	A
		Southbound Left	7.4	A	7.3	A	7.4	A	7.5	A

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

Source: Traffic Works, 2018

As shown in **Table 7**, the northbound approach of the US 50/Drako Way intersection is expected to operate at LOS F during the AM and PM peak hours. The remaining study intersections are expected to operate at acceptable levels of service with the project.

Recommended Improvements

The US 50/Drako Way intersection is expected to operate at LOS F with the proposed project. A traffic signal at this intersection would improve operations to acceptable levels during the AM and PM peak hours. **Table 8** shows the level of service results.

Table 8: Intersection Level of Service – Cumulative Plus Project Conditions with Mitigation

Intersection	Control	Approach/ Movement	AM		PM	
			Delay ¹	LOS	Delay ¹	LOS
US 50/Drako Way	Signal	Overall	9.7	A	10.5	B

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

Source: Traffic Works, 2018

As previously discussed, the US 50/Drako Way intersection is expected to meet the Four-Hour signal warrant criteria established in the *MUTCD* based on Existing Plus Project traffic volumes. Cumulative Plus Project traffic volumes are higher than Existing Plus Project traffic volumes and therefore would meet the signal warrant criteria as well.

It should be noted that a traffic signal at this location would need to be approved by NDOT. Prior to approval, specific design details would need to be formalized in coordination with NDOT.

NDOT Signal Spacing Requirements

The Nevada Department of Transportation's *Access Management System and Standards*, 2017 Edition includes traffic signal spacing standards for state roadways based on roadway classification and posted speed limit. US 50 is classified as an "Other Principal Arterial" with a posted speed limit of 55 mph adjacent to the project site. The required spacing between signalized intersections is 2,640 feet. The closest signal

to Drako Way is at the US 50/Deer Run Road intersection which is approximately 2,690 feet away. Therefore, a traffic signal at Drako Way would meet NDOT's minimum signal spacing requirements.

CONCLUSIONS AND RECOMMENDATIONS

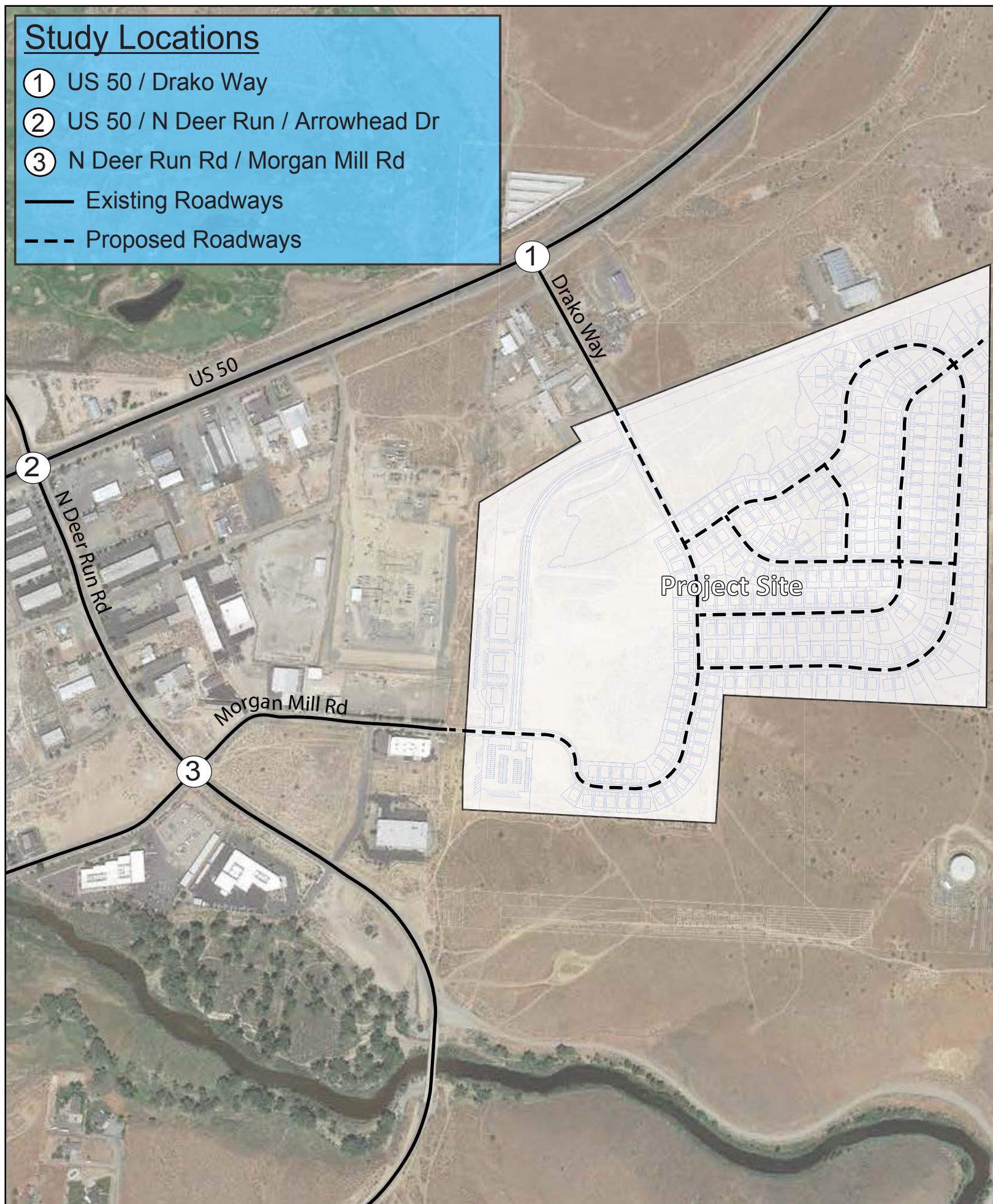
The following is a list of key findings and recommendations:

- The proposed project includes 270 single family houses, 250 apartments, 12,000 SF of offices, 12,000 SF of shopping, and 300 storage units.
- The proposed project is expected to generate approximately 5,003 Daily, 344 AM peak hour, and 473 PM peak hour trips.
- The US 50/Drako Way intersection is expected to operate at LOS E under existing conditions, and LOS F under Existing Plus Project conditions. The remaining study intersections would operate at acceptable levels of service during the AM and PM peak hours.
- A traffic signal at the US 50/Drako Way intersection would improve operations to acceptable levels (LOS A). The criteria for the Four-Hour signal warrant would be met based on Existing Plus Project conditions traffic volumes.
- The US 50/Drako Way intersection is expected to operate at LOS F under Cumulative and Cumulative Plus Project conditions. A traffic signal would improve operations to acceptable levels (LOS A and B) during the AM and PM peak hours.
- Drako Way is approximately 2,690 feet from the US 50/Deer Run Road intersection, which would meet NDOT signal spacing requirements.
- The proposed traffic signal, to be funded by the applicant, will be reviewed and constructed through the NDOT Occupancy Permit process with specific details established through that process.

Study Locations

- ① US 50 / Drako Way
- ② US 50 / N Deer Run / Arrowhead Dr
- ③ N Deer Run Rd / Morgan Mill Rd

— Existing Roadways
- - - Proposed Roadways



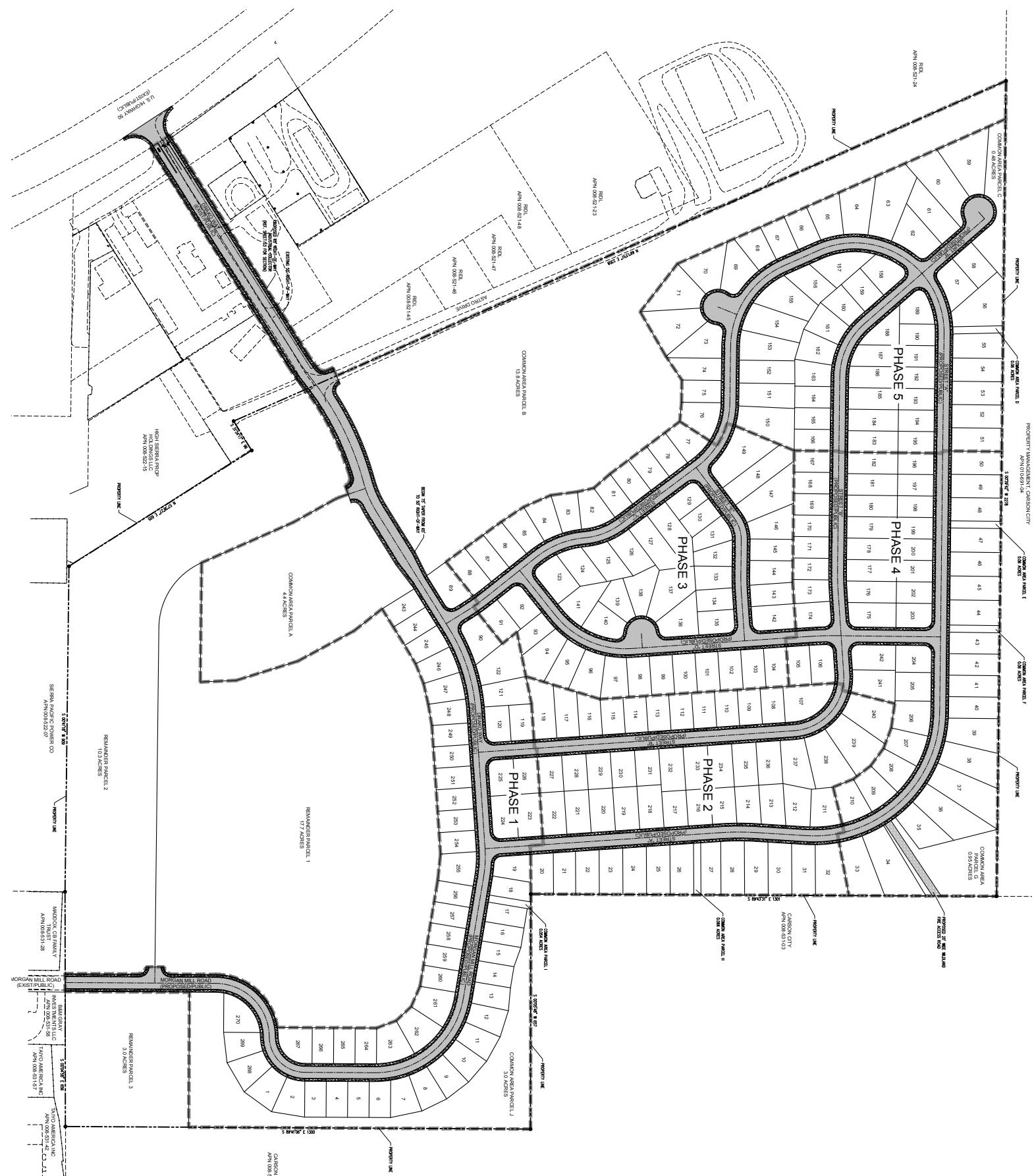
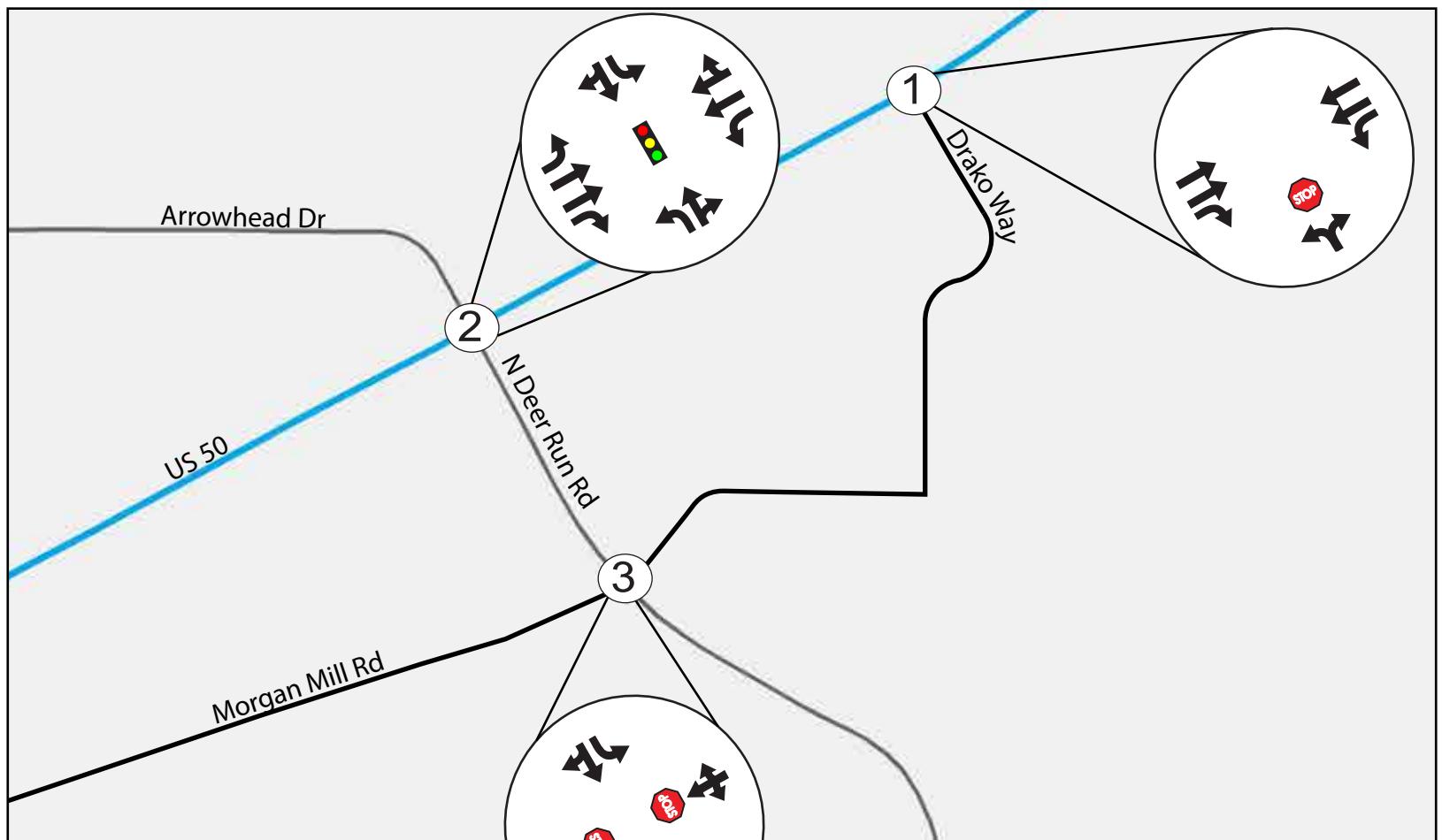
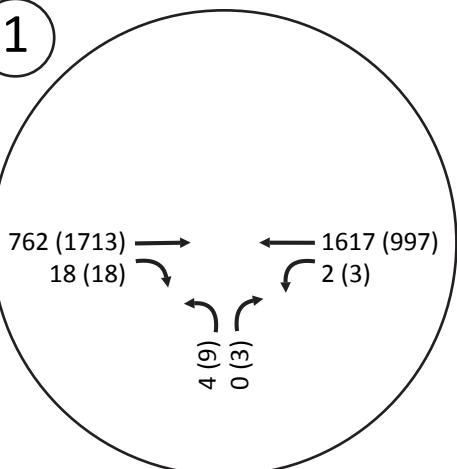


Figure 2

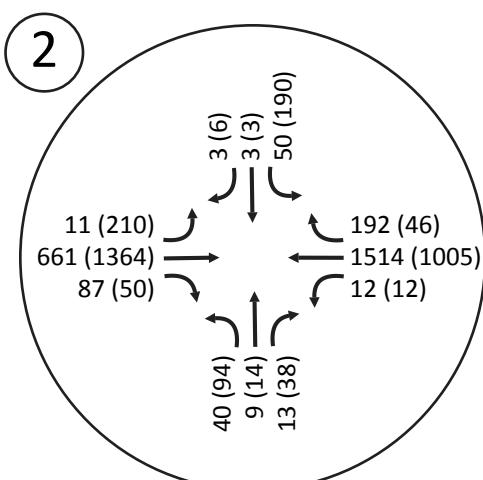
Plateau Development in Carson City, NV TRAFFIC IMPACT STUDY *Site Plan*



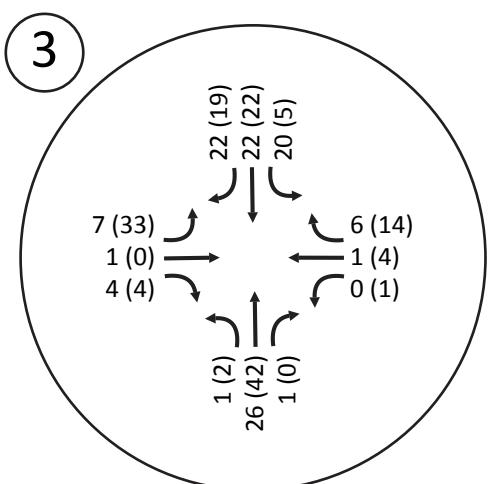
US 50 / Drako Way



US 50 / N Deer Run Rd



N Deer Run Rd / Morgan Mill Rd



AM Peak Hour Volume (PM Peak Hour Volume)



US 50 / Drako Way

1

12 (10) → 50 (147) ← 15 (43)
 129 (99) ← 37 (28)

US 50 / N Deer Run Rd

2

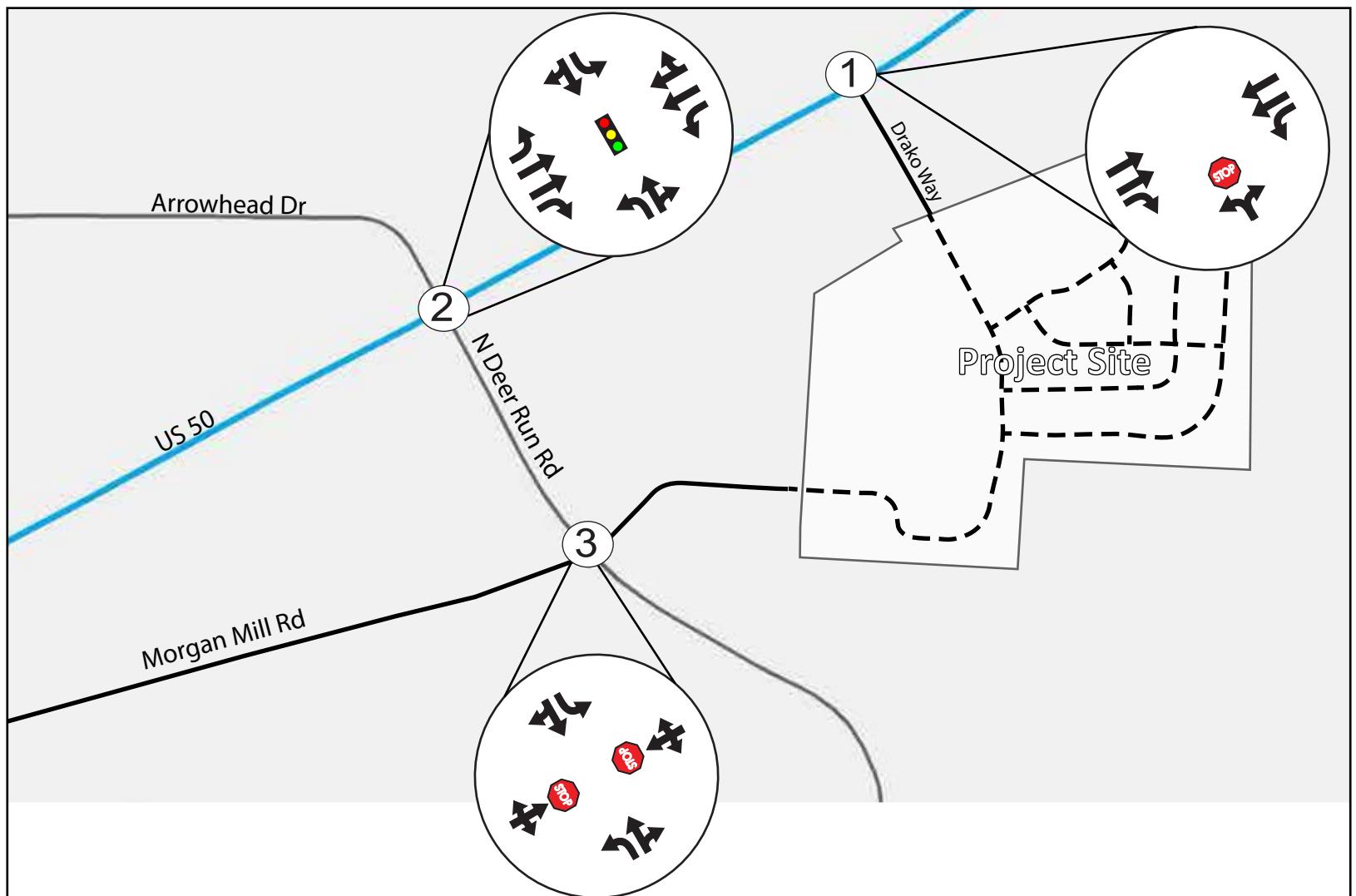
48 (142) → 24 (71) ← 124 (95)
 62 (48) ← 7 (6) ← 12 (9)
 3 (8) ← 2 (6)

N Deer Run Rd / Morgan Mill Rd

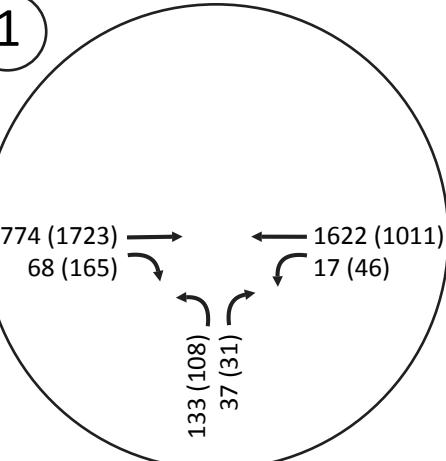
3

32 (93)
 81 (63)

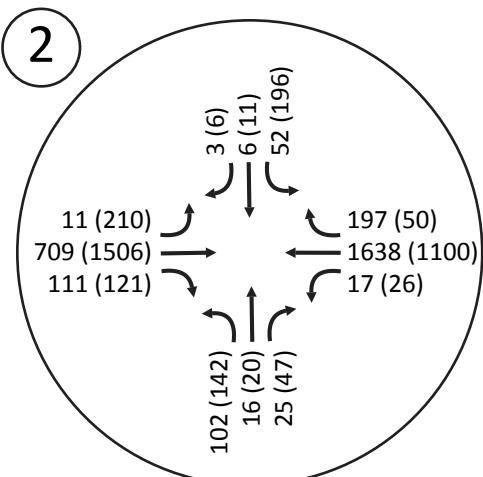
AM Peak Hour Volume (PM Peak Hour Volume)



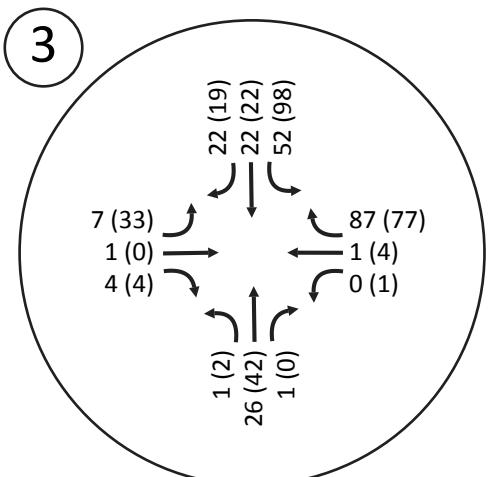
US 50 / Drako Way



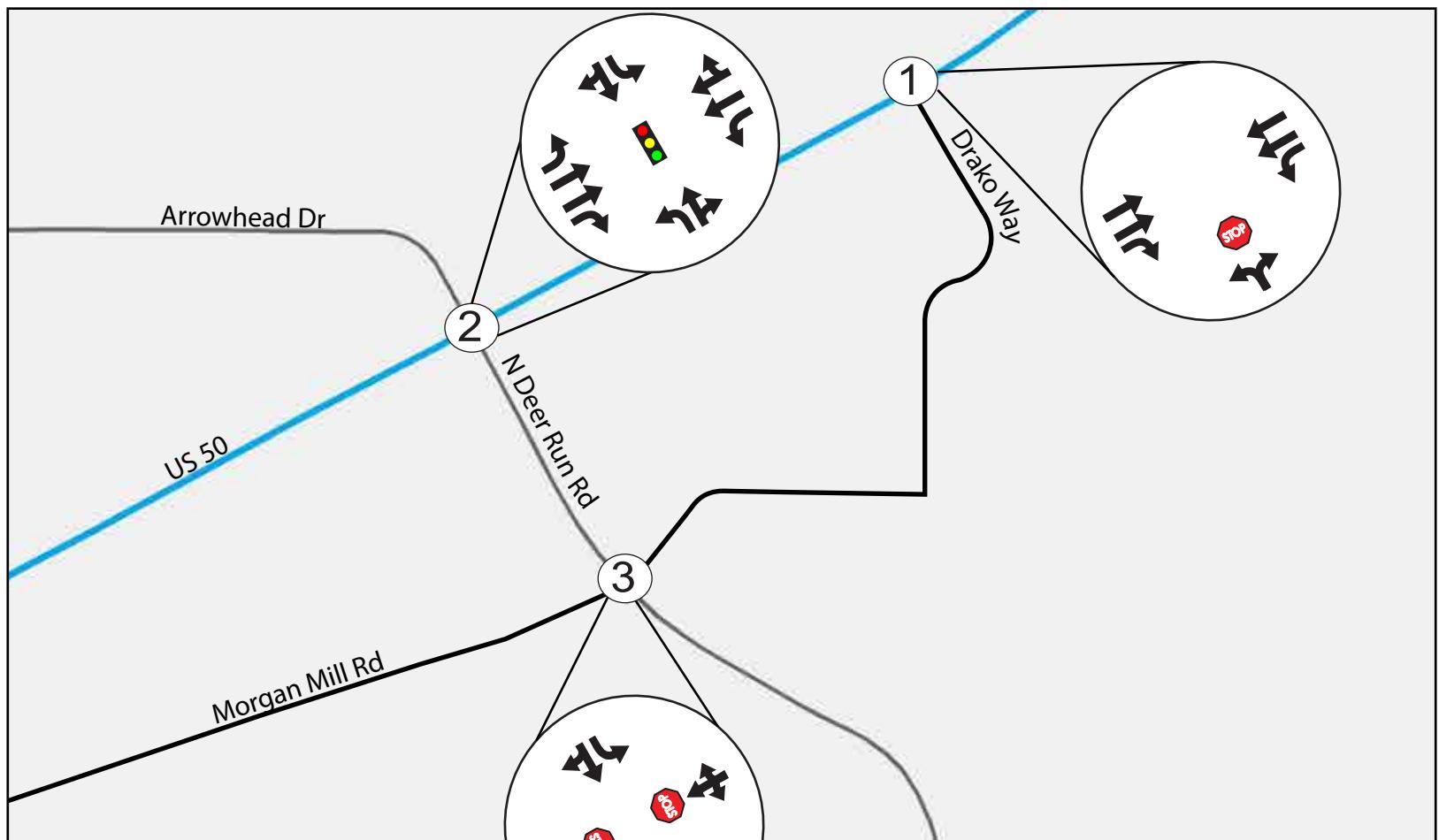
US 50 / N Deer Run Rd



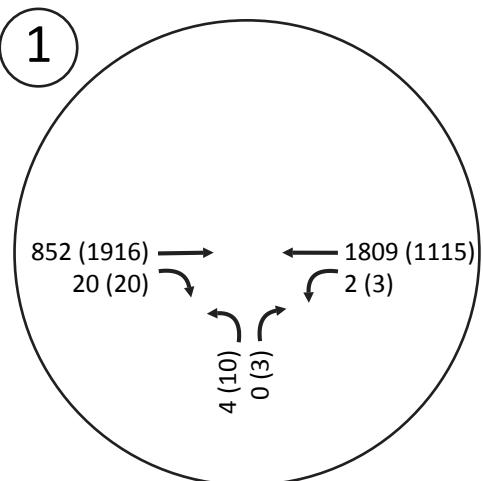
N Deer Run Rd / Morgan Mill Rd



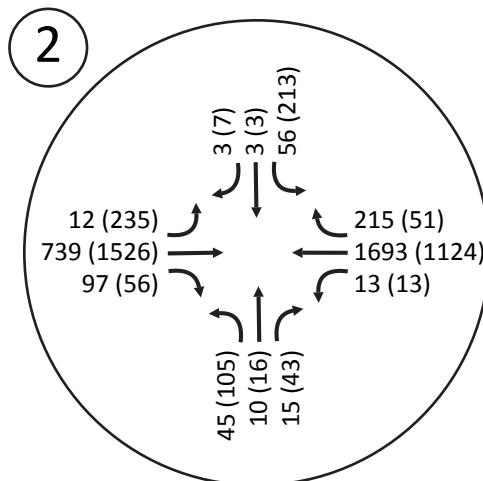
AM Peak Hour Volume (PM Peak Hour Volume)



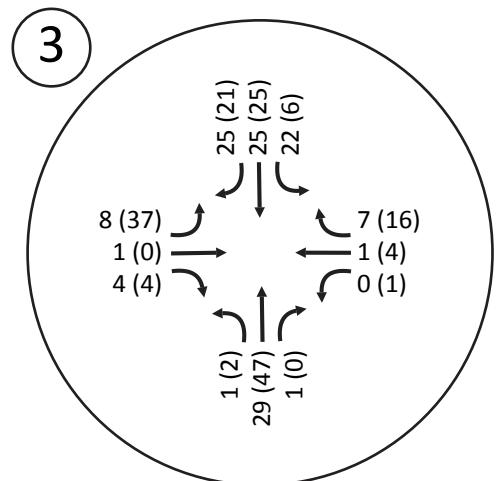
US 50 / Drako Way



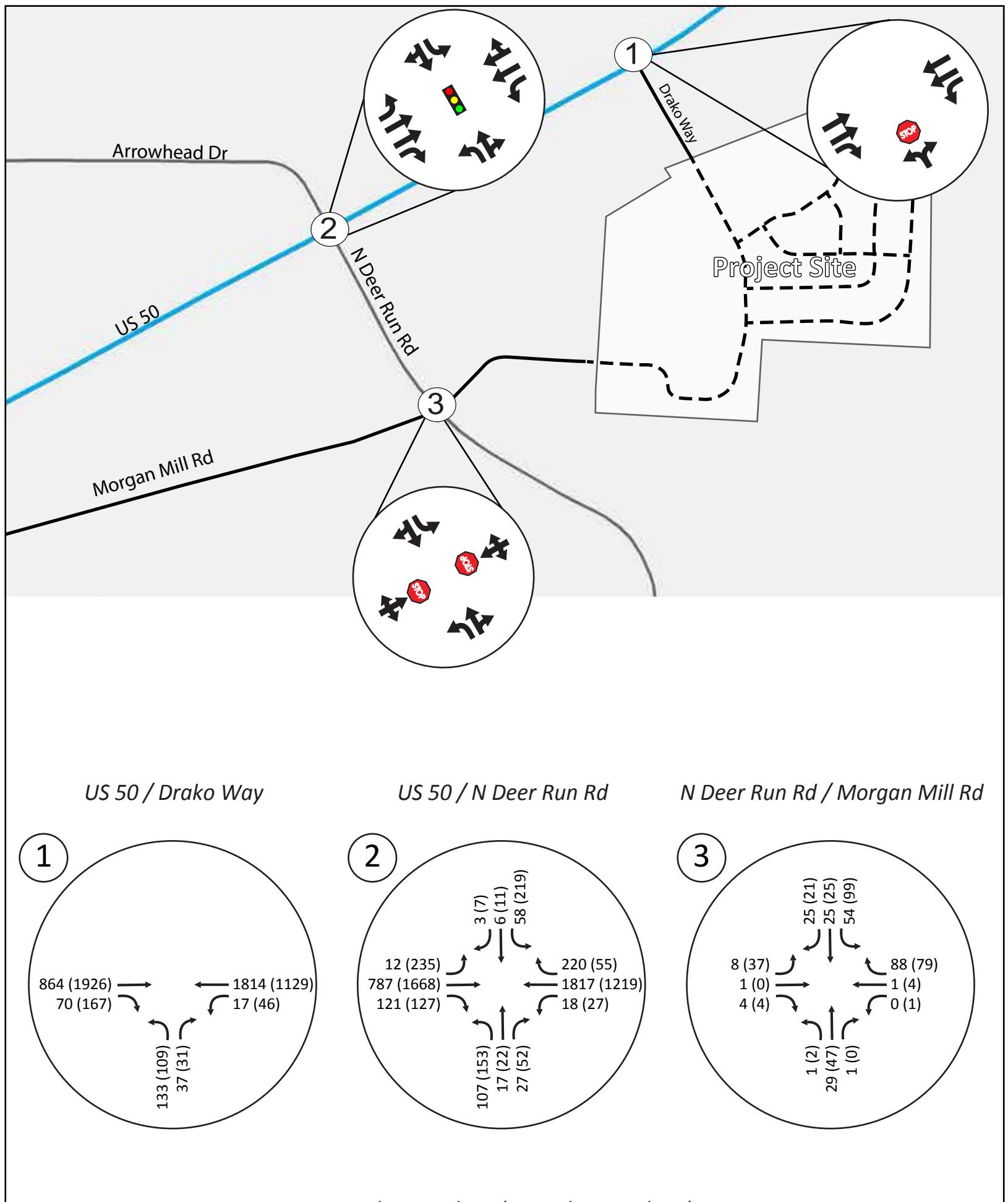
US 50 / N Deer Run Rd



N Deer Run Rd / Morgan Mill Rd



AM Peak Hour Volume (PM Peak Hour Volume)



Appendix A

Level of Service Calculations



HCM 2010 TWSC
1: Drako Way & US-50

Existing Conditions
AM Peak Hour

Intersection

Int Delay, s/veh 0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
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Lane Configurations	↑↑	↖	↖	↑↑	↖	
Traffic Vol, veh/h	762	18	2	1617	4	0
Future Vol, veh/h	762	18	2	1617	4	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	345	265	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	8	6	0	4	0	0
Mvmt Flow	953	23	3	2021	5	0

Major/Minor	Major1	Major2	Minor1	
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Conflicting Flow All	0	0	953	0	1969	476
Stage 1	-	-	-	-	953	-
Stage 2	-	-	-	-	1016	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	729	-	56	541
Stage 1	-	-	-	-	340	-
Stage 2	-	-	-	-	315	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	729	-	56	541
Mov Cap-2 Maneuver	-	-	-	-	175	-
Stage 1	-	-	-	-	340	-
Stage 2	-	-	-	-	314	-

Approach	EB	WB	NB
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HCM Control Delay, s	0	0	26.2
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HCM LOS			D
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Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	175	-	-	729	-
HCM Lane V/C Ratio	0.029	-	-	0.003	-
HCM Control Delay (s)	26.2	-	-	10	-
HCM Lane LOS	D	-	-	A	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 2010 Signalized Intersection Summary
2: N Deer Run Rd/Arrowhead Dr & US-50

Existing Conditions
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	11	661	87	12	1514	192	40	9	13	50	3	3
Future Volume (veh/h)	11	661	87	12	1514	192	40	9	13	50	3	3
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1727	1727	1624	1811	1900	1583	1675	1900	1508	1631	1900
Adj Flow Rate, veh/h	12	726	96	13	1664	211	44	10	14	55	3	3
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	10	10	17	5	5	20	0	0	26	0	0
Cap, veh/h	27	2041	913	24	1959	244	191	55	77	173	65	65
Arrive On Green	0.01	0.62	0.62	0.02	0.64	0.64	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1810	3282	1468	1547	3081	384	1194	633	886	1118	749	749
Grp Volume(v), veh/h	12	726	96	13	916	959	44	0	24	55	0	6
Grp Sat Flow(s),veh/h/ln	1810	1641	1468	1547	1721	1744	1194	0	1519	1118	0	1499
Q Serve(g_s), s	0.5	8.4	2.1	0.7	32.5	34.9	2.8	0.0	1.1	3.8	0.0	0.3
Cycle Q Clear(g_c), s	0.5	8.4	2.1	0.7	32.5	34.9	3.0	0.0	1.1	4.9	0.0	0.3
Prop In Lane	1.00		1.00	1.00		0.22	1.00		0.58	1.00		0.50
Lane Grp Cap(c), veh/h	27	2041	913	24	1094	1108	191	0	132	173	0	130
V/C Ratio(X)	0.45	0.36	0.11	0.53	0.84	0.87	0.23	0.00	0.18	0.32	0.00	0.05
Avail Cap(c_a), veh/h	462	2513	1124	296	1318	1335	773	0	872	718	0	861
HCM 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
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	38.3	7.2	6.0	38.3	11.1	11.6	34.2	0.0	33.2	35.5	0.0	32.8
Incr Delay (d2), s/veh	4.4	0.0	0.0	6.6	3.5	4.7	0.2	0.0	0.2	0.4	0.0	0.1
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	3.7	0.8	0.3	16.3	18.0	0.9	0.0	0.5	1.2	0.0	0.1
LnGrp Delay(d),s/veh	42.7	7.2	6.0	44.9	14.7	16.2	34.4	0.0	33.4	35.9	0.0	32.9
LnGrp LOS	D	A	A	D	B	B	C		C	D		C
Approach Vol, veh/h	834				1888				68			61
Approach Delay, s/veh	7.6				15.7				34.1			35.6
Approach LOS	A				B				C			D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+Rc), s	13.6	9.7	55.0		13.6	8.6	56.1					
Change Period (Y+Rc), s	* 6.8	* 8.5	* 6.3		* 6.8	* 7.5	* 6.3					
Max Green Setting (Gmax), s	* 45	* 15	* 60		* 45	* 20	* 60					
Max Q Clear Time (g_c+l1), s	5.0	2.7	10.4		6.9	2.5	36.9					
Green Ext Time (p_c), s	0.3	0.0	17.7		0.3	0.0	12.9					
Intersection Summary												
HCM 2010 Ctrl Delay				14.2								
HCM 2010 LOS				B								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 TWSC
3: N Deer Run Rd & Morgan Mill Rd

Existing Conditions
AM Peak Hour

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
----------	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

Lane Configurations	↖			↖		↑	↖	↑	↖	↑	↖	↑
Traffic Vol, veh/h	7	1	4	0	1	6	1	26	1	20	22	22
Future Vol, veh/h	7	1	4	0	1	6	1	26	1	20	22	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0	0	8	0	5	9	0
Mvmt Flow	9	1	5	0	1	8	1	33	1	25	28	28

Major/Minor	Minor2	Minor1	Major1	Major2
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Conflicting Flow All	134	130	43	132	143	34	57	0	0	34	0	0
Stage 1	93	93	-	36	36	-	-	-	-	-	-	-
Stage 2	41	37	-	96	107	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.15	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.245	-	-
Pot Cap-1 Maneuver	842	764	1033	845	752	1045	1560	-	-	1558	-	-
Stage 1	919	822	-	985	869	-	-	-	-	-	-	-
Stage 2	979	868	-	916	811	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	823	751	1032	829	739	1045	1560	-	-	1558	-	-
Mov Cap-2 Maneuver	823	751	-	829	739	-	-	-	-	-	-	-
Stage 1	918	808	-	984	868	-	-	-	-	-	-	-
Stage 2	970	867	-	895	797	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
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HCM Control Delay, s	9.2	8.7	0.3	2.3
HCM LOS	A	A	A	A

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
-----------------------	-----	-----	-----	-------	-------	-----	-----	-----

Capacity (veh/h)	1560	-	-	875	987	1558	-	-
HCM Lane V/C Ratio	0.001	-	-	0.017	0.009	0.016	-	-
HCM Control Delay (s)	7.3	-	-	9.2	8.7	7.3	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.1	-	-

HCM 2010 TWSC
1: Drako Way & US-50

Existing Conditions
PM Peak Hour

Intersection

Int Delay, s/veh 0.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
----------	-----	-----	-----	-----	-----	-----

Lane Configurations	↑↑	↖	↖	↑↑	↖	
Traffic Vol, veh/h	1713	18	3	997	9	3
Future Vol, veh/h	1713	18	3	997	9	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	345	265	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	0	33	4	11	33
Mvmt Flow	1822	19	3	1061	10	3

Major/Minor	Major1	Major2	Minor1	
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Conflicting Flow All	0	0	1822	0	2359	911
Stage 1	-	-	-	-	1822	-
Stage 2	-	-	-	-	537	-
Critical Hdwy	-	-	4.76	-	7.02	7.56
Critical Hdwy Stg 1	-	-	-	-	6.02	-
Critical Hdwy Stg 2	-	-	-	-	6.02	-
Follow-up Hdwy	-	-	2.53	-	3.61	3.63
Pot Cap-1 Maneuver	-	-	227	-	26	224
Stage 1	-	-	-	-	103	-
Stage 2	-	-	-	-	525	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	227	-	26	224
Mov Cap-2 Maneuver	-	-	-	-	85	-
Stage 1	-	-	-	-	103	-
Stage 2	-	-	-	-	518	-

Approach	EB	WB	NB
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HCM Control Delay, s	0	0.1	45.7
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HCM LOS		E	
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Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	101	-	-	227	-
HCM Lane V/C Ratio	0.126	-	-	0.014	-
HCM Control Delay (s)	45.7	-	-	21.1	-
HCM Lane LOS	E	-	-	C	-
HCM 95th %tile Q(veh)	0.4	-	-	0	-

HCM 2010 Signalized Intersection Summary
2: N Deer Run Rd/Arrowhead Dr & US-50

Existing Conditions
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	210	1364	50	12	1005	46	94	14	38	190	3	6
Future Volume (veh/h)	210	1364	50	12	1005	46	94	14	38	190	3	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1759	1624	1804	1900	1881	1800	1900	1863	1729	1900
Adj Flow Rate, veh/h	239	1550	57	14	1142	52	107	16	43	216	3	7
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	3	8	17	5	5	1	7	7	2	33	33
Cap, veh/h	270	1988	848	25	1480	67	362	92	248	313	97	227
Arrive On Green	0.15	0.57	0.57	0.02	0.44	0.44	0.21	0.21	0.21	0.21	0.21	0.21
Sat Flow, veh/h	1810	3505	1495	1547	3338	152	1413	433	1163	1338	457	1067
Grp Volume(v), veh/h	239	1550	57	14	586	608	107	0	59	216	0	10
Grp Sat Flow(s),veh/h/ln	1810	1752	1495	1547	1713	1777	1413	0	1595	1338	0	1524
Q Serve(g_s), s	13.7	36.4	1.8	1.0	30.7	30.7	6.9	0.0	3.2	16.7	0.0	0.6
Cycle Q Clear(g_c), s	13.7	36.4	1.8	1.0	30.7	30.7	7.4	0.0	3.2	19.9	0.0	0.6
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.73	1.00		0.70
Lane Grp Cap(c), veh/h	270	1988	848	25	759	788	362	0	340	313	0	325
V/C Ratio(X)	0.88	0.78	0.07	0.57	0.77	0.77	0.30	0.00	0.17	0.69	0.00	0.03
Avail Cap(c_a), veh/h	341	1988	848	219	969	1005	660	0	677	595	0	647
HCM 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
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.2	17.8	10.3	51.8	25.0	25.0	36.0	0.0	34.1	42.2	0.0	33.1
Incr Delay (d2), s/veh	17.2	1.9	0.0	7.4	2.1	2.1	0.2	0.0	0.1	1.0	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.1	18.0	0.7	0.5	14.9	15.5	2.7	0.0	1.4	6.3	0.0	0.2
LnGrp Delay(d),s/veh	61.4	19.7	10.3	59.2	27.1	27.1	36.2	0.0	34.2	43.2	0.0	33.1
LnGrp LOS	E	B	B	E	C	C	D		C	D		C
Approach Vol, veh/h	1846			1208			166		226			
Approach Delay, s/veh	24.8			27.5			35.5		42.8			
Approach LOS	C			C			D		D			
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+Rc), s	29.4	10.2	66.5		29.4	23.3	53.3					
Change Period (Y+Rc), s	* 6.8	* 8.5	* 6.3		* 6.8	* 7.5	* 6.3					
Max Green Setting (Gmax), s	* 45	* 15	* 60		* 45	* 20	* 60					
Max Q Clear Time (g_c+l1), s	9.4	3.0	38.4		21.9	15.7	32.7					
Green Ext Time (p_c), s	0.7	0.0	12.8		0.7	0.1	14.3					
Intersection Summary												
HCM 2010 Ctrl Delay	27.4											
HCM 2010 LOS	C											
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 TWSC
3: N Deer Run Rd & Morgan Mill Rd

Existing Conditions
PM Peak Hour

Intersection

Int Delay, s/veh 3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	0	4	1	4	14	2	42	0	5	22	19
Future Vol, veh/h	33	0	4	1	4	14	2	42	0	5	22	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	25	0	0	0	0	2	0	0	9	5
Mvmt Flow	42	0	5	1	5	18	3	53	0	6	28	24

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	123	111	40	113	123	53	52	0	0	53	0	0
Stage 1	53	53	-	58	58	-	-	-	-	-	-	-
Stage 2	70	58	-	55	65	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.45	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.525	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	856	783	969	869	771	1020	1567	-	-	1566	-	-
Stage 1	965	855	-	959	851	-	-	-	-	-	-	-
Stage 2	945	851	-	962	845	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	833	779	969	861	767	1020	1567	-	-	1566	-	-
Mov Cap-2 Maneuver	833	779	-	861	767	-	-	-	-	-	-	-
Stage 1	963	852	-	957	849	-	-	-	-	-	-	-
Stage 2	921	849	-	953	842	-	-	-	-	-	-	-

Approach	EB	WB			NB		SB	
HCM Control Delay, s	9.5	8.9			0.3		0.8	
HCM LOS	A	A			A		A	
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1567	-	-	846	945	1566	-	-
HCM Lane V/C Ratio	0.002	-	-	0.055	0.025	0.004	-	-
HCM Control Delay (s)	7.3	-	-	9.5	8.9	7.3	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

HCM 2010 TWSC
1: Drako Way & US-50

Existing Plus Project Conditions
AM Peak Hour

Intersection

Int Delay, s/veh 9.2

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations	↑↑	↖	↖	↑↑	↖	
Traffic Vol, veh/h	774	68	17	1622	133	37
Future Vol, veh/h	774	68	17	1622	133	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	345	265	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	8	6	0	4	0	0
Mvmt Flow	968	85	21	2028	166	46

Major/Minor Major1 Major2 Minor1

Conflicting Flow All	0	0	968	0	2024	484
Stage 1	-	-	-	-	968	-
Stage 2	-	-	-	-	1056	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	720	-	~51	534
Stage 1	-	-	-	-	334	-
Stage 2	-	-	-	-	300	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	720	-	~50	534
Mov Cap-2 Maneuver	-	-	-	-	~165	-
Stage 1	-	-	-	-	334	-
Stage 2	-	-	-	-	291	-

Approach EB WB NB

HCM Control Delay, s	0	0.1	143
HCM LOS			F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	194	-	-	720	-
HCM Lane V/C Ratio	1.095	-	-	0.03	-
HCM Control Delay (s)	143	-	-	10.2	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	10.2	-	-	0.1	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Signalized Intersection Summary
2: N Deer Run Rd/Arrowhead Dr & US-50

Existing Plus Project Conditions
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	11	709	111	17	1638	197	102	16	25	52	6	3
Future Volume (veh/h)	11	709	111	17	1638	197	102	16	25	52	6	3
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1727	1727	1624	1811	1900	1583	1670	1900	1508	1729	1900
Adj Flow Rate, veh/h	12	779	122	19	1800	216	112	18	27	57	7	3
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	10	10	17	5	5	20	0	0	26	0	0
Cap, veh/h	26	2026	906	32	1970	232	221	75	113	187	144	62
Arrive On Green	0.01	0.62	0.62	0.02	0.63	0.63	0.12	0.12	0.12	0.12	0.12	0.12
Sat Flow, veh/h	1810	3282	1468	1547	3103	365	1189	604	906	1097	1149	493
Grp Volume(v), veh/h	12	779	122	19	982	1034	112	0	45	57	0	10
Grp Sat Flow(s),veh/h/ln	1810	1641	1468	1547	1721	1747	1189	0	1510	1097	0	1642
Q Serve(g_s), s	0.6	10.9	3.2	1.1	44.3	48.3	8.3	0.0	2.5	4.5	0.0	0.5
Cycle Q Clear(g_c), s	0.6	10.9	3.2	1.1	44.3	48.3	8.8	0.0	2.5	7.0	0.0	0.5
Prop In Lane	1.00		1.00	1.00		0.21	1.00		0.60	1.00		0.30
Lane Grp Cap(c), veh/h	26	2026	906	32	1092	1109	221	0	189	187	0	205
V/C Ratio(X)	0.46	0.38	0.13	0.59	0.90	0.93	0.51	0.00	0.24	0.31	0.00	0.05
Avail Cap(c_a), veh/h	397	2160	966	254	1133	1150	660	0	745	591	0	810
HCM 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
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	44.6	8.8	7.3	44.2	14.2	14.9	39.0	0.0	36.0	39.1	0.0	35.1
Incr Delay (d2), s/veh	4.7	0.0	0.0	6.1	9.2	12.8	0.7	0.0	0.2	0.3	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	4.9	1.3	0.5	23.5	26.9	2.8	0.0	1.0	1.4	0.0	0.2
LnGrp Delay(d),s/veh	49.2	8.8	7.3	50.4	23.4	27.7	39.7	0.0	36.2	39.5	0.0	35.2
LnGrp LOS	D	A	A	D	C	C	D		D	D		D
Approach Vol, veh/h	913				2035				157			67
Approach Delay, s/veh	9.1				25.8				38.7			38.8
Approach LOS	A				C				D			D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+Rc), s	18.2	10.4	62.6		18.2	8.8	64.2					
Change Period (Y+Rc), s	* 6.8	* 8.5	* 6.3		* 6.8	* 7.5	* 6.3					
Max Green Setting (Gmax), s	* 45	* 15	* 60		* 45	* 20	* 60					
Max Q Clear Time (g_c+l1), s	10.8	3.1	12.9		9.0	2.6	50.3					
Green Ext Time (p_c), s	0.6	0.0	20.6		0.6	0.0	7.6					
Intersection Summary												
HCM 2010 Ctrl Delay				21.9								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

HCM 2010 TWSC
3: N Deer Run Rd & Morgan Mill Rd

Existing Plus Project Conditions
AM Peak Hour

Intersection

Int Delay, s/veh 5.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	1	4	0	1	87	1	26	1	52	22	22
Future Vol, veh/h	7	1	4	0	1	87	1	26	1	52	22	22
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0	0	8	0	5	9	0
Mvmt Flow	9	1	5	0	1	110	1	33	1	66	28	28

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	266	211	43	213	224	34	57	0	0	34	0	0
Stage 1	174	174	-	36	36	-	-	-	-	-	-	-
Stage 2	92	37	-	177	188	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.15	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.245	-	-
Pot Cap-1 Maneuver	691	690	1033	748	678	1045	1560	-	-	1558	-	-
Stage 1	833	759	-	985	869	-	-	-	-	-	-	-
Stage 2	920	868	-	829	748	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	596	660	1032	719	648	1045	1560	-	-	1558	-	-
Mov Cap-2 Maneuver	596	660	-	719	648	-	-	-	-	-	-	-
Stage 1	832	726	-	984	868	-	-	-	-	-	-	-
Stage 2	821	867	-	789	716	-	-	-	-	-	-	-

Approach	EB	WB			NB			SB				
HCM Control Delay, s	10.3	8.9				0.3				4		
HCM LOS	B	A										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1560	-	-	700	1038	1558	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.022	0.107	0.042	-	-				
HCM Control Delay (s)	7.3	-	-	10.3	8.9	7.4	-	-				
HCM Lane LOS	A	-	-	B	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-				

HCM 2010 TWSC
1: Drako Way & US-50

Existing Plus Project Conditions
PM Peak Hour

Intersection

Int Delay, s/veh 18.7

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	1723	165	46	1011	108	31
Future Vol, veh/h	1723	165	46	1011	108	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	345	265	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	0	33	4	11	33
Mvmt Flow	1833	176	49	1076	115	33

Major/Minor Major1 Major2 Minor1

Conflicting Flow All	0	0	1833	0	2469	916
Stage 1	-	-	-	-	1833	-
Stage 2	-	-	-	-	636	-
Critical Hdwy	-	-	4.76	-	7.02	7.56
Critical Hdwy Stg 1	-	-	-	-	6.02	-
Critical Hdwy Stg 2	-	-	-	-	6.02	-
Follow-up Hdwy	-	-	2.53	-	3.61	3.63
Pot Cap-1 Maneuver	-	-	224	-	~22	222
Stage 1	-	-	-	-	~102	-
Stage 2	-	-	-	-	466	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	224	-	~17	222
Mov Cap-2 Maneuver	-	-	-	-	~78	-
Stage 1	-	-	-	-	~102	-
Stage 2	-	-	-	-	364	-

Approach EB WB NB

HCM Control Delay, s 0 1.1 \$ 405.9

HCM LOS F

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	91	-	-	224	-
HCM Lane V/C Ratio	1.625	-	-	0.218	-
HCM Control Delay (s)	\$ 405.9	-	-	25.5	-
HCM Lane LOS	F	-	-	D	-
HCM 95th %tile Q(veh)	11.8	-	-	0.8	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Signalized Intersection Summary
2: N Deer Run Rd/Arrowhead Dr & US-50

Existing Plus Project Conditions
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	210	1506	121	26	1100	50	142	20	47	196	11	6
Future Volume (veh/h)	210	1506	121	26	1100	50	142	20	47	196	11	6
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1759	1624	1804	1900	1881	1799	1900	1863	1564	1900
Adj Flow Rate, veh/h	239	1711	138	30	1250	57	161	23	53	223	12	7
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	3	8	17	5	5	1	7	7	2	33	33
Cap, veh/h	268	1940	828	42	1472	67	370	111	256	315	211	123
Arrive On Green	0.15	0.55	0.55	0.03	0.44	0.44	0.23	0.23	0.23	0.23	0.23	0.23
Sat Flow, veh/h	1810	3505	1495	1547	3338	152	1401	485	1117	1318	923	538
Grp Volume(v), veh/h	239	1711	138	30	641	666	161	0	76	223	0	19
Grp Sat Flow(s),veh/h/ln	1810	1752	1495	1547	1713	1777	1401	0	1602	1318	0	1461
Q Serve(g_s), s	14.7	48.3	5.1	2.2	37.9	38.0	11.5	0.0	4.3	18.7	0.0	1.2
Cycle Q Clear(g_c), s	14.7	48.3	5.1	2.2	37.9	38.0	12.6	0.0	4.3	23.0	0.0	1.2
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.70	1.00		0.37
Lane Grp Cap(c), veh/h	268	1940	828	42	756	784	370	0	367	315	0	335
V/C Ratio(X)	0.89	0.88	0.17	0.72	0.85	0.85	0.43	0.00	0.21	0.71	0.00	0.06
Avail Cap(c_a), veh/h	319	1940	828	205	908	941	606	0	636	537	0	580
HCM 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
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.4	22.1	12.4	54.7	28.3	28.3	39.1	0.0	35.3	44.7	0.0	34.1
Incr Delay (d2), s/veh	20.8	5.0	0.0	8.3	5.7	5.6	0.3	0.0	0.1	1.1	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	8.9	24.4	2.1	1.0	19.0	19.7	4.5	0.0	1.9	6.9	0.0	0.5
LnGrp Delay(d),s/veh	68.1	27.0	12.5	63.0	33.9	33.9	39.4	0.0	35.5	45.8	0.0	34.1
LnGrp LOS	E	C	B	E	C	C	D		D	D		C
Approach Vol, veh/h	2088				1337				237			242
Approach Delay, s/veh	30.8				34.5				38.1			44.9
Approach LOS	C				C			D		D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+Rc), s	32.7	11.6	69.0		32.7	24.3	56.3					
Change Period (Y+Rc), s	* 6.8	* 8.5	* 6.3		* 6.8	* 7.5	* 6.3					
Max Green Setting (Gmax), s	* 45	* 15	* 60		* 45	* 20	* 60					
Max Q Clear Time (g_c+l1), s	14.6	4.2	50.3		25.0	16.7	40.0					
Green Ext Time (p_c), s	0.9	0.0	7.8		0.9	0.1	10.0					
Intersection Summary												
HCM 2010 Ctrl Delay				33.4								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Int Delay, s/veh 6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	33	0	4	1	4	77	2	42	0	98	22	19
Future Vol, veh/h	33	0	4	1	4	77	2	42	0	98	22	19
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	25	0	0	0	0	2	0	0	9	5
Mvmt Flow	42	0	5	1	5	97	3	53	0	124	28	24

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	397	346	40	349	358	53	52	0	0	53	0	0
Stage 1	288	288	-	58	58	-	-	-	-	-	-	-
Stage 2	109	58	-	291	300	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.45	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.525	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	567	580	969	609	572	1020	1567	-	-	1566	-	-
Stage 1	724	677	-	959	851	-	-	-	-	-	-	-
Stage 2	901	851	-	721	669	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	478	533	969	568	526	1020	1567	-	-	1566	-	-
Mov Cap-2 Maneuver	478	533	-	568	526	-	-	-	-	-	-	-
Stage 1	723	623	-	957	849	-	-	-	-	-	-	-
Stage 2	808	849	-	660	616	-	-	-	-	-	-	-

Approach	EB	WB			NB		SB	
HCM Control Delay, s	12.8	9.2			0.3		5.3	
HCM LOS	B	A						
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1567	-	-	506	966	1566	-	-
HCM Lane V/C Ratio	0.002	-	-	0.093	0.107	0.079	-	-
HCM Control Delay (s)	7.3	-	-	12.8	9.2	7.5	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.4	0.3	-	-

HCM 2010 Signalized Intersection Summary
1: Drako Way & US-50

Existing Plus Project Conditions - Mitigated
AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (veh/h)	774	68	17	1622	133	37
Future Volume (veh/h)	774	68	17	1622	133	37
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1792	1900	1827	1900	1900
Adj Flow Rate, veh/h	968	85	21	2028	166	46
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	8	6	0	4	0	0
Cap, veh/h	2253	1027	43	2633	217	194
Arrive On Green	0.67	0.67	0.02	0.76	0.12	0.12
Sat Flow, veh/h	3431	1524	1810	3563	1810	1615
Grp Volume(v), veh/h	968	85	21	2028	166	46
Grp Sat Flow(s),veh/h/ln	1671	1524	1810	1736	1810	1615
Q Serve(g_s), s	9.8	1.4	0.8	25.1	6.6	1.9
Cycle Q Clear(g_c), s	9.8	1.4	0.8	25.1	6.6	1.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2253	1027	43	2633	217	194
V/C Ratio(X)	0.43	0.08	0.49	0.77	0.76	0.24
Avail Cap(c_a), veh/h	2385	1087	127	2932	452	404
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.5	4.2	35.7	5.2	31.5	29.5
Incr Delay (d2), s/veh	0.1	0.0	8.4	1.2	5.5	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	4.5	0.6	0.5	12.0	3.6	0.9
LnGrp Delay(d),s/veh	5.7	4.2	44.1	6.4	37.1	30.1
LnGrp LOS	A	A	D	A	D	C
Approach Vol, veh/h	1053			2049	212	
Approach Delay, s/veh	5.5			6.8	35.6	
Approach LOS	A			A	D	
Timer	1	2	3	4	5	6
Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s	13.4	6.3	54.4		60.6	
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5	
Max Green Setting (Gmax), s	18.5	5.2	52.8		62.5	
Max Q Clear Time (g_c+l1), s	8.6	2.8	11.8		27.1	
Green Ext Time (p_c), s	0.4	0.0	32.7		29.0	
Intersection Summary						
HCM 2010 Ctrl Delay			8.2			
HCM 2010 LOS			A			

HCM 2010 Signalized Intersection Summary
1: Drako Way & US-50

Existing Plus Project Conditions - Mitigated
PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (veh/h)	1723	165	46	1011	108	31
Future Volume (veh/h)	1723	165	46	1011	108	31
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1429	1827	1712	1429
Adj Flow Rate, veh/h	1833	176	49	1076	115	33
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	0	33	4	11	33
Cap, veh/h	2365	1090	59	2709	155	116
Arrive On Green	0.67	0.67	0.04	0.78	0.10	0.10
Sat Flow, veh/h	3597	1615	1361	3563	1630	1214
Grp Volume(v), veh/h	1833	176	49	1076	115	33
Grp Sat Flow(s),veh/h/ln	1752	1615	1361	1736	1630	1214
Q Serve(g_s), s	25.8	2.9	2.6	7.1	5.0	1.8
Cycle Q Clear(g_c), s	25.8	2.9	2.6	7.1	5.0	1.8
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2365	1090	59	2709	155	116
V/C Ratio(X)	0.78	0.16	0.83	0.40	0.74	0.29
Avail Cap(c_a), veh/h	2545	1173	109	3016	410	306
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	8.0	4.3	34.3	2.5	31.8	30.4
Incr Delay (d2), s/veh	1.5	0.1	24.6	0.1	6.8	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.7	1.3	1.4	3.3	2.5	0.7
LnGrp Delay(d),s/veh	9.5	4.4	58.9	2.6	38.6	31.8
LnGrp LOS	A	A	E	A	D	C
Approach Vol, veh/h	2009			1125	148	
Approach Delay, s/veh	9.0			5.1	37.1	
Approach LOS	A			A	D	
Timer	1	2	3	4	5	6
Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s	11.4	7.6	53.3		60.9	
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5	
Max Green Setting (Gmax), s	18.2	5.8	52.5		62.8	
Max Q Clear Time (g_c+l1), s	7.0	4.6	27.8		9.1	
Green Ext Time (p_c), s	0.3	0.0	21.0		38.9	
Intersection Summary						
HCM 2010 Ctrl Delay			8.9			
HCM 2010 LOS			A			

HCM 2010 TWSC
1: Drako Way & US-50

Cumulative Conditions
AM Peak Hour

Intersection

Int Delay, s/veh 0

Movement	EBT	EBR	WBL	WBT	NBL	NBR
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Lane Configurations	↑↑	↖	↖	↑↑	↖	
Traffic Vol, veh/h	852	20	2	1809	4	0
Future Vol, veh/h	852	20	2	1809	4	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	345	265	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	8	6	0	4	0	0
Mvmt Flow	1065	25	3	2261	5	0

Major/Minor	Major1	Major2	Minor1
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Conflicting Flow All	0	0	1065	0	2201	533
Stage 1	-	-	-	-	1065	-
Stage 2	-	-	-	-	1136	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	662	-	39	496
Stage 1	-	-	-	-	297	-
Stage 2	-	-	-	-	272	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	662	-	39	496
Mov Cap-2 Maneuver	-	-	-	-	147	-
Stage 1	-	-	-	-	297	-
Stage 2	-	-	-	-	271	-

Approach	EB	WB	NB
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HCM Control Delay, s	0	0	30.4
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HCM LOS			D
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Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
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Capacity (veh/h)	147	-	-	662	-
HCM Lane V/C Ratio	0.034	-	-	0.004	-
HCM Control Delay (s)	30.4	-	-	10.5	-
HCM Lane LOS	D	-	-	B	-
HCM 95th %tile Q(veh)	0.1	-	-	0	-

HCM 2010 Signalized Intersection Summary
2: N Deer Run Rd/Arrowhead Dr & US-50

Cumulative Conditions
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	12	739	97	13	1693	215	45	10	15	56	3	3
Future Volume (veh/h)	12	739	97	13	1693	215	45	10	15	56	3	3
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1727	1727	1624	1811	1900	1583	1672	1900	1508	1631	1900
Adj Flow Rate, veh/h	13	812	107	14	1860	236	49	11	16	62	3	3
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	10	10	17	5	5	20	0	0	26	0	0
Cap, veh/h	28	2117	947	25	2026	252	190	58	85	168	71	71
Arrive On Green	0.02	0.65	0.65	0.02	0.66	0.66	0.09	0.09	0.09	0.09	0.09	0.09
Sat Flow, veh/h	1810	3282	1468	1547	3082	383	1194	617	897	1115	749	749
Grp Volume(v), veh/h	13	812	107	14	1021	1075	49	0	27	62	0	6
Grp Sat Flow(s),veh/h/ln	1810	1641	1468	1547	1721	1744	1194	0	1514	1115	0	1499
Q Serve(g_s), s	0.6	10.3	2.5	0.8	44.3	48.8	3.4	0.0	1.5	4.8	0.0	0.3
Cycle Q Clear(g_c), s	0.6	10.3	2.5	0.8	44.3	48.8	3.8	0.0	1.5	6.3	0.0	0.3
Prop In Lane	1.00		1.00	1.00		0.22	1.00		0.59	1.00		0.50
Lane Grp Cap(c), veh/h	28	2117	947	25	1131	1147	190	0	143	168	0	142
V/C Ratio(X)	0.46	0.38	0.11	0.55	0.90	0.94	0.26	0.00	0.19	0.37	0.00	0.04
Avail Cap(c_a), veh/h	408	2222	994	262	1165	1181	683	0	769	629	0	761
HCM 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
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	43.3	7.4	6.0	43.2	12.8	13.6	38.2	0.0	37.0	39.9	0.0	36.5
Incr Delay (d2), s/veh	4.4	0.0	0.0	6.7	9.4	13.3	0.3	0.0	0.2	0.5	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.3	4.6	1.0	0.4	23.7	27.2	1.2	0.0	0.6	1.5	0.0	0.1
LnGrp Delay(d),s/veh	47.7	7.5	6.0	50.0	22.2	26.9	38.4	0.0	37.2	40.4	0.0	36.5
LnGrp LOS	D	A	A	D	C	C	D		D	D		D
Approach Vol, veh/h	932				2110				76			68
Approach Delay, s/veh	7.9				24.8				38.0			40.0
Approach LOS	A				C				D			D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+Rc), s	15.2	10.0	63.5		15.2	8.9	64.5					
Change Period (Y+Rc), s	* 6.8	* 8.5	* 6.3		* 6.8	* 7.5	* 6.3					
Max Green Setting (Gmax), s	* 45	* 15	* 60		* 45	* 20	* 60					
Max Q Clear Time (g_c+l1), s	5.8	2.8	12.3		8.3	2.6	50.8					
Green Ext Time (p_c), s	0.4	0.0	22.5		0.4	0.0	7.5					
Intersection Summary												
HCM 2010 Ctrl Delay				20.5								
HCM 2010 LOS				C								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Int Delay, s/veh 2.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	1	4	0	1	7	1	29	1	22	25	25
Future Vol, veh/h	8	1	4	0	1	7	1	29	1	22	25	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0	0	8	0	5	9	0
Mvmt Flow	10	1	5	0	1	9	1	37	1	28	32	32

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	149	145	48	146	160	37	64	0	0	38	0	0
Stage 1	104	104	-	40	40	-	-	-	-	-	-	-
Stage 2	45	41	-	106	120	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.15	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.245	-	-
Pot Cap-1 Maneuver	824	750	1027	827	736	1041	1551	-	-	1553	-	-
Stage 1	907	813	-	980	866	-	-	-	-	-	-	-
Stage 2	974	865	-	905	800	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	804	735	1026	810	722	1041	1551	-	-	1553	-	-
Mov Cap-2 Maneuver	804	735	-	810	722	-	-	-	-	-	-	-
Stage 1	906	798	-	979	865	-	-	-	-	-	-	-
Stage 2	964	864	-	883	785	-	-	-	-	-	-	-

Approach	EB	WB			NB		SB	
HCM Control Delay, s	9.3	8.7			0.2		2.2	
HCM LOS	A	A			A		A	
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1551	-	-	855	987	1553	-	-
HCM Lane V/C Ratio	0.001	-	-	0.019	0.01	0.018	-	-
HCM Control Delay (s)	7.3	-	-	9.3	8.7	7.4	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0	0.1	-	-

HCM 2010 TWSC
1: Drako Way & US-50

Cumulative Conditions
PM Peak Hour

Intersection

Int Delay, s/veh 0.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
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Lane Configurations	↑↑	↖	↖	↑↑	↖	
Traffic Vol, veh/h	1916	20	3	1115	10	3
Future Vol, veh/h	1916	20	3	1115	10	3
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	345	265	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	0	33	4	11	33
Mvmt Flow	2038	21	3	1186	11	3

Major/Minor	Major1	Major2	Minor1		
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Conflicting Flow All	0	0	2038	0	2637	1019
Stage 1	-	-	-	-	2038	-
Stage 2	-	-	-	-	599	-
Critical Hdwy	-	-	4.76	-	7.02	7.56
Critical Hdwy Stg 1	-	-	-	-	6.02	-
Critical Hdwy Stg 2	-	-	-	-	6.02	-
Follow-up Hdwy	-	-	2.53	-	3.61	3.63
Pot Cap-1 Maneuver	-	-	181	-	17	187
Stage 1	-	-	-	-	78	-
Stage 2	-	-	-	-	487	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	181	-	17	187
Mov Cap-2 Maneuver	-	-	-	-	65	-
Stage 1	-	-	-	-	78	-
Stage 2	-	-	-	-	479	-

Approach	EB	WB	NB		
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HCM Control Delay, s	0	0.1	61.7		
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HCM LOS		F			
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Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	77	-	-	181	-	
HCM Lane V/C Ratio	0.18	-	-	0.018	-	
HCM Control Delay (s)	61.7	-	-	25.2	-	
HCM Lane LOS	F	-	-	D	-	
HCM 95th %tile Q(veh)	0.6	-	-	0.1	-	

HCM 2010 Signalized Intersection Summary
2: N Deer Run Rd/Arrowhead Dr & US-50

Cumulative Conditions
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	235	1526	56	13	1124	51	105	16	43	213	3	7
Future Volume (veh/h)	235	1526	56	13	1124	51	105	16	43	213	3	7
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1759	1624	1804	1900	1881	1800	1900	1863	1743	1900
Adj Flow Rate, veh/h	267	1734	64	15	1277	58	119	18	49	242	3	8
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	3	8	17	5	5	1	7	7	2	33	33
Cap, veh/h	294	1967	839	26	1414	64	387	101	275	331	98	262
Arrive On Green	0.16	0.56	0.56	0.02	0.42	0.42	0.24	0.24	0.24	0.24	0.24	0.24
Sat Flow, veh/h	1810	3505	1495	1547	3339	151	1412	428	1166	1329	417	1112
Grp Volume(v), veh/h	267	1734	64	15	655	680	119	0	67	242	0	11
Grp Sat Flow(s),veh/h/ln	1810	1752	1495	1547	1713	1777	1412	0	1595	1329	0	1530
Q Serve(g_s), s	16.8	49.7	2.3	1.1	41.2	41.3	8.2	0.0	3.9	20.5	0.0	0.6
Cycle Q Clear(g_c), s	16.8	49.7	2.3	1.1	41.2	41.3	8.8	0.0	3.9	24.4	0.0	0.6
Prop In Lane	1.00		1.00	1.00		0.09	1.00		0.73	1.00		0.73
Lane Grp Cap(c), veh/h	294	1967	839	26	726	753	387	0	375	331	0	360
V/C Ratio(X)	0.91	0.88	0.08	0.59	0.90	0.90	0.31	0.00	0.18	0.73	0.00	0.03
Avail Cap(c_a), veh/h	313	1967	839	201	889	922	604	0	621	535	0	596
HCM 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
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	47.5	22.0	11.6	56.4	31.1	31.1	37.4	0.0	35.3	45.0	0.0	34.0
Incr Delay (d2), s/veh	26.6	4.9	0.0	7.7	9.6	9.5	0.2	0.0	0.1	1.2	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	10.6	25.2	0.9	0.5	21.4	22.2	3.2	0.0	1.7	7.6	0.0	0.3
LnGrp Delay(d),s/veh	74.1	26.9	11.6	64.1	40.7	40.6	37.6	0.0	35.3	46.2	0.0	34.0
LnGrp LOS	E	C	B	E	D	D	D		D	D		C
Approach Vol, veh/h	2065				1350				186			253
Approach Delay, s/veh	32.5				40.9				36.8			45.7
Approach LOS		C				D		D		D		
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	34.0	10.4	71.2		34.0	26.3	55.3					
Change Period (Y+Rc), s	* 6.8	* 8.5	* 6.3		* 6.8	* 7.5	* 6.3					
Max Green Setting (Gmax), s	* 45	* 15	* 60		* 45	* 20	* 60					
Max Q Clear Time (g_c+l1), s	10.8	3.1	51.7		26.4	18.8	43.3					
Green Ext Time (p_c), s	0.8	0.0	6.9		0.8	0.1	5.6					
Intersection Summary												
HCM 2010 Ctrl Delay				36.6								
HCM 2010 LOS				D								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Int Delay, s/veh 3.9

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	0	4	1	4	16	2	47	0	6	25	21
Future Vol, veh/h	37	0	4	1	4	16	2	47	0	6	25	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	25	0	0	0	0	2	0	0	9	5
Mvmt Flow	47	0	5	1	5	20	3	59	0	8	32	27

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	137	125	45	128	138	59	58	0	0	59	0	0
Stage 1	60	60	-	65	65	-	-	-	-	-	-	-
Stage 2	77	65	-	63	73	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.45	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.525	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	838	769	963	850	757	1012	1559	-	-	1558	-	-
Stage 1	957	849	-	951	845	-	-	-	-	-	-	-
Stage 2	937	845	-	953	838	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	813	764	963	841	752	1012	1559	-	-	1558	-	-
Mov Cap-2 Maneuver	813	764	-	841	752	-	-	-	-	-	-	-
Stage 1	955	845	-	949	843	-	-	-	-	-	-	-
Stage 2	911	843	-	943	834	-	-	-	-	-	-	-

Approach	EB	WB			NB		SB	
HCM Control Delay, s	9.7	8.9			0.3		0.8	
HCM LOS	A	A			A		A	
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1559	-	-	826	941	1558	-	-
HCM Lane V/C Ratio	0.002	-	-	0.063	0.028	0.005	-	-
HCM Control Delay (s)	7.3	-	-	9.7	8.9	7.3	-	-
HCM Lane LOS	A	-	-	A	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.1	0	-	-

Intersection

Int Delay, s/veh 12.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
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Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Vol, veh/h	864	70	17	1814	133	37
Future Vol, veh/h	864	70	17	1814	133	37
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	345	265	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	80	80	80	80	80	80
Heavy Vehicles, %	8	6	0	4	0	0
Mvmt Flow	1080	88	21	2268	166	46

Major/Minor	Major1	Major2	Minor1
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Conflicting Flow All	0	0	1080	0	2256	540
Stage 1	-	-	-	-	1080	-
Stage 2	-	-	-	-	1176	-
Critical Hdwy	-	-	4.1	-	6.8	6.9
Critical Hdwy Stg 1	-	-	-	-	5.8	-
Critical Hdwy Stg 2	-	-	-	-	5.8	-
Follow-up Hdwy	-	-	2.2	-	3.5	3.3
Pot Cap-1 Maneuver	-	-	653	-	~36	491
Stage 1	-	-	-	-	292	-
Stage 2	-	-	-	-	260	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	653	-	~35	491
Mov Cap-2 Maneuver	-	-	-	-	~139	-
Stage 1	-	-	-	-	292	-
Stage 2	-	-	-	-	252	-

Approach	EB	WB	NB
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HCM Control Delay, s	0	0.1	221.4
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HCM LOS	F		
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Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	165	-	-	653	-
HCM Lane V/C Ratio	1.288	-	-	0.033	-
HCM Control Delay (s)	221.4	-	-	10.7	-
HCM Lane LOS	F	-	-	B	-
HCM 95th %tile Q(veh)	12.4	-	-	0.1	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Signalized Intersection Summary
2: N Deer Run Rd/Arrowhead Dr & US-50

Cumulative Plus Project Conditions
AM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑	↖	↖	↑↑		↖	↖		↖	↖	
Traffic Volume (veh/h)	12	787	121	18	1817	220	107	17	27	58	6	3
Future Volume (veh/h)	12	787	121	18	1817	220	107	17	27	58	6	3
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1727	1727	1624	1811	1900	1583	1665	1900	1508	1729	1900
Adj Flow Rate, veh/h	13	865	133	20	1997	242	118	19	30	64	7	3
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Percent Heavy Veh, %	0	10	10	17	5	5	20	0	0	26	0	0
Cap, veh/h	28	2034	910	33	1973	234	224	76	119	186	149	64
Arrive On Green	0.02	0.62	0.62	0.02	0.64	0.64	0.13	0.13	0.13	0.13	0.13	0.13
Sat Flow, veh/h	1810	3282	1468	1547	3099	368	1189	583	920	1093	1149	493
Grp Volume(v), veh/h	13	865	133	20	1091	1148	118	0	49	64	0	10
Grp Sat Flow(s),veh/h/ln	1810	1641	1468	1547	1721	1746	1189	0	1503	1093	0	1642
Q Serve(g_s), s	0.7	12.8	3.6	1.2	59.3	60.0	9.1	0.0	2.8	5.3	0.0	0.5
Cycle Q Clear(g_c), s	0.7	12.8	3.6	1.2	59.3	60.0	9.6	0.0	2.8	8.0	0.0	0.5
Prop In Lane	1.00		1.00	1.00		0.21	1.00		0.61	1.00		0.30
Lane Grp Cap(c), veh/h	28	2034	910	33	1095	1112	224	0	195	186	0	213
V/C Ratio(X)	0.47	0.43	0.15	0.60	1.00	1.03	0.53	0.00	0.25	0.34	0.00	0.05
Avail Cap(c_a), veh/h	384	2089	935	246	1095	1112	638	0	718	566	0	784
HCM 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
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	46.0	9.3	7.5	45.7	17.0	17.1	40.1	0.0	36.9	40.5	0.0	35.9
Incr Delay (d2), s/veh	4.5	0.1	0.0	6.2	26.1	35.8	0.7	0.0	0.2	0.4	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	0.4	5.8	1.4	0.6	35.5	39.5	3.0	0.0	1.2	1.6	0.0	0.2
LnGrp Delay(d),s/veh	50.6	9.3	7.5	51.9	43.1	52.9	40.8	0.0	37.2	40.9	0.0	36.0
LnGrp LOS	D	A	A	D	D	F	D		D	D		D
Approach Vol, veh/h	1011				2259				167			74
Approach Delay, s/veh	9.6				48.2				39.8			40.3
Approach LOS	A				D				D			D
Timer	1	2	3	4	5	6	7	8				
Assigned Phs	2	3	4		6	7	8					
Phs Duration (G+Y+Rc), s	19.0	10.5	64.7		19.0	8.9	66.3					
Change Period (Y+Rc), s	* 6.8	* 8.5	* 6.3		* 6.8	* 7.5	* 6.3					
Max Green Setting (Gmax), s	* 45	* 15	* 60		* 45	* 20	* 60					
Max Q Clear Time (g_c+l1), s	11.6	3.2	14.8		10.0	2.7	62.0					
Green Ext Time (p_c), s	0.6	0.0	25.3		0.6	0.0	0.0					
Intersection Summary												
HCM 2010 Ctrl Delay				36.5								
HCM 2010 LOS				D								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Int Delay, s/veh 5.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	8	1	4	0	1	88	1	29	1	54	25	25
Future Vol, veh/h	8	1	4	0	1	88	1	29	1	54	25	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	1
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	0	0	0	0	0	8	0	5	9	0
Mvmt Flow	10	1	5	0	1	111	1	37	1	68	32	32

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	281	226	48	227	241	37	64	0	0	38	0	0
Stage 1	185	185	-	40	40	-	-	-	-	-	-	-
Stage 2	96	41	-	187	201	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.2	7.1	6.5	6.2	4.1	-	-	4.15	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.3	3.5	4	3.3	2.2	-	-	2.245	-	-
Pot Cap-1 Maneuver	675	677	1027	733	664	1041	1551	-	-	1553	-	-
Stage 1	821	751	-	980	866	-	-	-	-	-	-	-
Stage 2	916	865	-	819	739	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	581	646	1026	704	634	1041	1551	-	-	1553	-	-
Mov Cap-2 Maneuver	581	646	-	704	634	-	-	-	-	-	-	-
Stage 1	820	717	-	979	865	-	-	-	-	-	-	-
Stage 2	816	864	-	778	706	-	-	-	-	-	-	-

Approach	EB	WB			NB			SB				
HCM Control Delay, s	10.5	8.9			0.2			3.9				
HCM LOS	B	A										
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR				
Capacity (veh/h)	1551	-	-	677	1034	1553	-	-				
HCM Lane V/C Ratio	0.001	-	-	0.024	0.109	0.044	-	-				
HCM Control Delay (s)	7.3	-	-	10.5	8.9	7.4	-	-				
HCM Lane LOS	A	-	-	B	A	A	-	-				
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0.1	-	-				

Intersection

Int Delay, s/veh 27.7

Movement EBT EBR WBL WBT NBL NBR

Lane Configurations	↑↑	↑	↑	↑↑	↑	
Traffic Vol, veh/h	1926	167	46	1129	109	31
Future Vol, veh/h	1926	167	46	1129	109	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	345	265	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	94	94	94	94	94	94
Heavy Vehicles, %	3	0	33	4	11	33
Mvmt Flow	2049	178	49	1201	116	33

Major/Minor Major1 Major2 Minor1

Conflicting Flow All	0	0	2049	0	2747	1024
Stage 1	-	-	-	-	2049	-
Stage 2	-	-	-	-	698	-
Critical Hdwy	-	-	4.76	-	7.02	7.56
Critical Hdwy Stg 1	-	-	-	-	6.02	-
Critical Hdwy Stg 2	-	-	-	-	6.02	-
Follow-up Hdwy	-	-	2.53	-	3.61	3.63
Pot Cap-1 Maneuver	-	-	179	-	~ 14	185
Stage 1	-	-	-	-	~ 76	-
Stage 2	-	-	-	-	432	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	179	-	~ 10	185
Mov Cap-2 Maneuver	-	-	-	-	~ 59	-
Stage 1	-	-	-	-	~ 76	-
Stage 2	-	-	-	-	314	-

Approach EB WB NB

HCM Control Delay, s	0	1.3	\$ 662.3
HCM LOS		F	

Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT
Capacity (veh/h)	69	-	-	179	-
HCM Lane V/C Ratio	2.158	-	-	0.273	-
HCM Control Delay (s)	\$ 662.3	-	-	32.5	-
HCM Lane LOS	F	-	-	D	-
HCM 95th %tile Q(veh)	14	-	-	1.1	-

Notes

~: Volume exceeds capacity \$: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

HCM 2010 Signalized Intersection Summary
2: N Deer Run Rd/Arrowhead Dr & US-50

Cumulative Plus Project Conditions
PM Peak Hour

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↑	↑↑	↑	↑	↑↑		↑	↑		↑	↑	
Traffic Volume (veh/h)	235	1668	127	27	1219	55	153	22	52	219	11	7
Future Volume (veh/h)	235	1668	127	27	1219	55	153	22	52	219	11	7
Number	7	4	14	3	8	18	5	2	12	1	6	16
Initial Q (Qb), veh	0	0	0	0	0	0	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)	1.00		1.00	1.00		1.00	1.00		1.00	1.00		0.99
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1900	1845	1759	1624	1804	1900	1881	1799	1900	1863	1578	1900
Adj Flow Rate, veh/h	267	1895	144	31	1385	62	174	25	59	249	12	8
Adj No. of Lanes	1	2	1	1	2	0	1	1	0	1	1	0
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Percent Heavy Veh, %	0	3	8	17	5	5	1	7	7	2	33	33
Cap, veh/h	281	1949	832	40	1453	65	392	119	281	329	220	147
Arrive On Green	0.16	0.56	0.56	0.03	0.43	0.43	0.25	0.25	0.25	0.25	0.25	0.25
Sat Flow, veh/h	1810	3505	1495	1547	3341	149	1400	476	1124	1308	879	586
Grp Volume(v), veh/h	267	1895	144	31	709	738	174	0	84	249	0	20
Grp Sat Flow(s),veh/h/ln	1810	1752	1495	1547	1713	1777	1400	0	1601	1308	0	1465
Q Serve(g_s), s	18.9	67.4	6.1	2.6	51.5	51.8	13.9	0.0	5.4	24.0	0.0	1.3
Cycle Q Clear(g_c), s	18.9	67.4	6.1	2.6	51.5	51.8	15.2	0.0	5.4	29.3	0.0	1.3
Prop In Lane	1.00		1.00	1.00		0.08	1.00		0.70	1.00		0.40
Lane Grp Cap(c), veh/h	281	1949	832	40	745	773	392	0	401	329	0	367
V/C Ratio(X)	0.95	0.97	0.17	0.77	0.95	0.95	0.44	0.00	0.21	0.76	0.00	0.05
Avail Cap(c_a), veh/h	281	1949	832	180	797	827	530	0	559	458	0	511
HCM 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
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.00	1.00	1.00	0.00	1.00
Uniform Delay (d), s/veh	54.0	27.7	14.1	62.4	35.1	35.2	42.5	0.0	38.3	49.9	0.0	36.7
Incr Delay (d2), s/veh	40.3	14.3	0.0	10.9	19.8	19.9	0.3	0.0	0.1	2.7	0.0	0.0
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	12.6	36.2	2.5	1.2	28.3	29.5	5.4	0.0	2.4	8.9	0.0	0.5
LnGrp Delay(d),s/veh	94.3	41.9	14.1	73.4	54.9	55.2	42.8	0.0	38.3	52.5	0.0	36.8
LnGrp LOS	F	D	B	E	D	E	D		D	D		D
Approach Vol, veh/h	2306				1478				258			269
Approach Delay, s/veh	46.3				55.4				41.4			51.4
Approach LOS		D				E			D		D	
Timer	1	2	3	4	5	6	7	8				
Assigned Phs		2	3	4		6	7	8				
Phs Duration (G+Y+Rc), s	39.1	11.9	78.0		39.1	27.5	62.4					
Change Period (Y+Rc), s	* 6.8	* 8.5	* 6.3		* 6.8	* 7.5	* 6.3					
Max Green Setting (Gmax), s	* 45	* 15	* 60		* 45	* 20	* 60					
Max Q Clear Time (g_c+l1), s	17.2	4.6	69.4		31.3	20.9	53.8					
Green Ext Time (p_c), s	1.0	0.0	0.0		0.9	0.0	2.3					
Intersection Summary												
HCM 2010 Ctrl Delay				49.4								
HCM 2010 LOS				D								
Notes												
* HCM 2010 computational engine requires equal clearance times for the phases crossing the barrier.												

Intersection

Int Delay, s/veh 6.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	37	0	4	1	4	79	2	47	0	99	25	21
Future Vol, veh/h	37	0	4	1	4	79	2	47	0	99	25	21
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	75	-	-	75	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	79	79	79	79	79	79	79	79	79	79	79	79
Heavy Vehicles, %	0	0	25	0	0	0	0	2	0	0	9	5
Mvmt Flow	47	0	5	1	5	100	3	59	0	125	32	27

Major/Minor	Minor2	Minor1			Major1			Major2				
Conflicting Flow All	413	361	45	363	374	59	58	0	0	59	0	0
Stage 1	296	296	-	65	65	-	-	-	-	-	-	-
Stage 2	117	65	-	298	309	-	-	-	-	-	-	-
Critical Hdwy	7.1	6.5	6.45	7.1	6.5	6.2	4.1	-	-	4.1	-	-
Critical Hdwy Stg 1	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.1	5.5	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.5	4	3.525	3.5	4	3.3	2.2	-	-	2.2	-	-
Pot Cap-1 Maneuver	553	569	963	597	560	1012	1559	-	-	1558	-	-
Stage 1	717	672	-	951	845	-	-	-	-	-	-	-
Stage 2	892	845	-	715	663	-	-	-	-	-	-	-
Platoon blocked, %								-	-	-	-	-
Mov Cap-1 Maneuver	464	522	963	557	514	1012	1559	-	-	1558	-	-
Mov Cap-2 Maneuver	464	522	-	557	514	-	-	-	-	-	-	-
Stage 1	716	618	-	949	843	-	-	-	-	-	-	-
Stage 2	797	843	-	654	610	-	-	-	-	-	-	-

Approach	EB	WB			NB		SB	
HCM Control Delay, s	13.2	9.2			0.3		5.1	
HCM LOS	B	A						
Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1559	-	-	489	958	1558	-	-
HCM Lane V/C Ratio	0.002	-	-	0.106	0.111	0.08	-	-
HCM Control Delay (s)	7.3	-	-	13.2	9.2	7.5	-	-
HCM Lane LOS	A	-	-	B	A	A	-	-
HCM 95th %tile Q(veh)	0	-	-	0.4	0.4	0.3	-	-

HCM 2010 Signalized Intersection Summary
1: Project Access Rd & US-50

Cumulative Plus Project Conditions - Mitigated
AM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (veh/h)	864	70	17	1814	133	37
Future Volume (veh/h)	864	70	17	1814	133	37
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1759	1792	1900	1827	1900	1900
Adj Flow Rate, veh/h	1080	88	21	2268	166	46
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.80	0.80	0.80	0.80	0.80	0.80
Percent Heavy Veh, %	8	6	0	4	0	0
Cap, veh/h	2291	1044	42	2660	215	191
Arrive On Green	0.69	0.69	0.02	0.77	0.12	0.12
Sat Flow, veh/h	3431	1524	1810	3563	1810	1615
Grp Volume(v), veh/h	1080	88	21	2268	166	46
Grp Sat Flow(s),veh/h/ln	1671	1524	1810	1736	1810	1615
Q Serve(g_s), s	11.7	1.5	0.9	34.4	7.0	2.0
Cycle Q Clear(g_c), s	11.7	1.5	0.9	34.4	7.0	2.0
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2291	1044	42	2660	215	191
V/C Ratio(X)	0.47	0.08	0.50	0.85	0.77	0.24
Avail Cap(c_a), veh/h	2291	1044	120	2775	428	382
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	5.7	4.1	37.7	6.2	33.4	31.3
Incr Delay (d2), s/veh	0.2	0.0	8.7	2.7	5.9	0.6
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	5.3	0.6	0.6	16.7	3.8	0.9
LnGrp Delay(d),s/veh	5.9	4.1	46.4	8.8	39.3	31.9
LnGrp LOS	A	A	D	A	D	C
Approach Vol, veh/h	1168			2289	212	
Approach Delay, s/veh	5.7			9.2	37.7	
Approach LOS	A			A	D	
Timer	1	2	3	4	5	6
Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s	13.8	6.3	58.1		64.4	
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5	
Max Green Setting (Gmax), s	18.5	5.2	52.8		62.5	
Max Q Clear Time (g_c+l1), s	9.0	2.9	13.7		36.4	
Green Ext Time (p_c), s	0.4	0.0	34.3		23.5	
Intersection Summary						
HCM 2010 Ctrl Delay			9.7			
HCM 2010 LOS			A			

HCM 2010 Signalized Intersection Summary
1: Drako Way & US-50

Cumulative Plus Project Conditions - Mitigated
PM Peak Hour

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (veh/h)	1926	167	46	1129	109	31
Future Volume (veh/h)	1926	167	46	1129	109	31
Number	4	14	3	8	5	12
Initial Q (Qb), veh	0	0	0	0	0	0
Ped-Bike Adj(A_pbT)		1.00	1.00		1.00	1.00
Parking Bus, Adj	1.00	1.00	1.00	1.00	1.00	1.00
Adj Sat Flow, veh/h/ln	1845	1900	1429	1827	1712	1429
Adj Flow Rate, veh/h	2049	178	49	1201	116	33
Adj No. of Lanes	2	1	1	2	1	1
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Percent Heavy Veh, %	3	0	33	4	11	33
Cap, veh/h	2402	1107	58	2731	155	115
Arrive On Green	0.69	0.69	0.04	0.79	0.09	0.09
Sat Flow, veh/h	3597	1615	1361	3563	1630	1214
Grp Volume(v), veh/h	2049	178	49	1201	116	33
Grp Sat Flow(s),veh/h/ln	1752	1615	1361	1736	1630	1214
Q Serve(g_s), s	33.7	3.0	2.7	8.6	5.3	1.9
Cycle Q Clear(g_c), s	33.7	3.0	2.7	8.6	5.3	1.9
Prop In Lane		1.00	1.00		1.00	1.00
Lane Grp Cap(c), veh/h	2402	1107	58	2731	155	115
V/C Ratio(X)	0.85	0.16	0.85	0.44	0.75	0.29
Avail Cap(c_a), veh/h	2462	1134	89	2871	385	287
HCM Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
Upstream Filter(l)	1.00	1.00	1.00	1.00	1.00	1.00
Uniform Delay (d), s/veh	9.1	4.2	36.2	2.6	33.6	32.1
Incr Delay (d2), s/veh	3.1	0.1	34.3	0.1	7.1	1.3
Initial Q Delay(d3),s/veh	0.0	0.0	0.0	0.0	0.0	0.0
%ile BackOfQ(50%),veh/ln	17.0	1.3	1.6	4.0	2.7	0.7
LnGrp Delay(d),s/veh	12.1	4.3	70.5	2.8	40.6	33.4
LnGrp LOS	B	A	E	A	D	C
Approach Vol, veh/h	2227			1250	149	
Approach Delay, s/veh	11.5			5.4	39.0	
Approach LOS	B			A	D	
Timer	1	2	3	4	5	6
Assigned Phs		2	3	4		8
Phs Duration (G+Y+Rc), s	11.7	7.7	56.7		64.4	
Change Period (Y+Rc), s	4.5	4.5	4.5		4.5	
Max Green Setting (Gmax), s	18.0	5.0	53.5		63.0	
Max Q Clear Time (g_c+l1), s	7.3	4.7	35.7		10.6	
Green Ext Time (p_c), s	0.3	0.0	16.5		43.0	
Intersection Summary						
HCM 2010 Ctrl Delay			10.5			
HCM 2010 LOS			B			