Agenda Item No: 14.C

STAFF REPORT

Report To: Board of Supervisors **Meeting Date:** August 19, 2021

Staff Contact: Heather Ferris, Planning Manager

Agenda Title: For Possible Action: Discussion and possible action regarding a request for a Tentative Subdivision Map (SUB-2021-0211) for a development known as East Nye Lane to create 61 single family residential lots on a 17.0+/- acre parcel zoned Mobile Home 12,000 (MH12), located east of Otha Street and west of Debbie Way between E. Nye Lane and College Parkway, APN 008-192-71. (Heather Ferris, hferris@carson.org)

Staff Summary: The applicant is requesting to subdivide a 17.0+/- acre parcel into 61 single family residential lots with a minimum lot size of 8,000 square feet and an average lot size of 8,477 square feet. The proposed subdivision will also include 0.61 acres of common open space and an average of 4,280 square feet of private open space per lot. The applicant is seeking to subdivide the land as a Common Open Space development per the provisions of Chapter 17.10 of the Carson City Municipal Code (CCMC). The Board of Supervisors is authorized to approve a Tentative Subdivision Map, following recommendation from the Planning Commission.

Agenda Action: Formal Action / Motion **Time Requested:** 15 minutes

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Proposed Motion
I move to approve the Tentative Subdivision Map as presented.

Board's Strategic Goal
Quality of Life

Previous Action
July 28, 2021: The Planning Commission recommended approval by a vote of 6 – 0, 1 absent, based on the ability to make the required findings in the affirmative and subject to the conditions of approval. The conditions of approval recommended by the Planning Commission are included in the attached memo dated August 5, 2021 from staff to the Board of Supervisors.

Background/Issues & Analysis
The Board of Supervisors is authorized to approve tentative subdivision maps. The Planning Commission makes a recommendation to the Board. Additional information is contained in the attached memo dated August 5, 2021 and the Planning Commission Staff Report.

Applicable Statute, Code, Policy, Rule or Regulation
NRS 278.330; CCMC 17.05 (Tentative Maps) and 17.07 (Findings)

Financial Information
Is there a fiscal impact? No

If yes, account name/number:

Is it currently budgeted? No

Explanation of Fiscal Impact:

Alternatives

1. Modify the recommended conditions of approval for the request.
2. Deny the application.
3. Refer the application back to the Planning Commission for further consideration.

Attachments:

SUB-2021-0211 BOS memo.doc.docx

PC Staff Report SUB-2021-0211 E. Nye Lane and correspondence.pdf

Board Action Taken:

Motion: _____ 1) _____ Aye/Nay

2) _____

_____

_____

_____

_____

_____

_____

(Vote Recorded By)

CARSON CITY
PLANNING DIVISION

108 E. Proctor Street
Carson City, Nevada 89701
(775) 887-2180
Hearing Impaired: 711

MEMORANDUM
Board of Supervisors Meeting of August 19, 2021

TO: Board of Supervisors

FROM: Heather Ferris
Planning Manager

DATE: August 5, 2021

SUBJECT: For Possible Action: Discussion and possible action regarding a request for a Tentative Subdivision Map (SUB-2021-0211) for a development known as East Nye Lane to create 61 single family residential lots on a 17.0+/- acre parcel zoned Mobile Home 12,000 (MH12), located east of Otha Street and west of Debbie Way between E. Nye Lane and College Parkway, APN 008-192-71.

At its meeting of July 28, 2021, the Planning Commission recommended approval of the request subject to the following conditions of approval. The Planning Commission recommendation differs from the recommendation in the staff report, specifically with respect to Conditions 9, 18, 21, and 31. The Conditions of Approval, as recommended by the Planning Commission are listed below.

The following are conditions of approval required per CCMC 18.02.105.5:

1. All final maps shall be in substantial accord with the approved tentative map.

2. Prior to submittal of any final map, the Development Engineering Department shall approve all on-site and off-site improvements. The applicant shall provide construction plans to the Development Engineering Department for all required on-site and off-site improvements, prior to any submittals for approval of a final map. The plan must adhere to the recommendations contained in the project soils and geotechnical report.

3. Lots not planned for immediate development shall be left undisturbed and mass grading and clearing of natural vegetation shall not be allowed. Any and all grading shall comply with City standards. A grading permit from the Nevada Division of Environmental Protection shall be obtained prior to any grading. Noncompliance with this provision shall cause a cease and desist order to halt all grading work.

4. All lot areas and lot widths shall meet the zoning requirements approved as part of this tentative map with the submittal of any final map.

5. With the submittal of any final maps, the applicant shall provide evidence to the Planning and Community Development Department from the Health and Fire Departments indicating the agencies' concerns or requirements have been satisfied. Said

correspondence shall be included in the submittal package for any final maps and shall include approval by the Fire Department of all hydrant locations.

6. The following note shall be placed on all final maps stating:

"These parcels are subject to Carson City's Growth Management Ordinance and all property owners shall comply with provisions of said ordinance."

7. Placement of all utilities, including AT&T Cablevision, shall be underground within the subdivision. Any existing overhead facilities shall be relocated prior to the submittal of a final map.

8. The applicant must sign and return the Notice of Decision for conditions for approval within ten (10) days of receipt of notification after the Board of Supervisors meeting. If the Notice of Decision is not signed and returned within ten (10) days, then the item may be rescheduled for the next Planning Commission meeting for further consideration.

9. Hours of construction will be limited to 7:00 a.m. to 7:00 p.m., Monday through Friday, and 7:00 a.m. to 5:00 p.m. on Saturday. Construction on Sunday is prohibited. If the hours of construction are not adhered to, the Carson City Building Department will issue a warning for the first violation, and upon a second violation, will have the ability to cause work at the site to cease immediately.

10. The applicant shall adhere to all City standards and requirements for water and sewer systems, grading and drainage, and street improvements.

11. The applicant shall obtain a dust control permit from the Nevada Division of Environmental Protection. The site grading must incorporate proper dust control and erosion control measures.

12. A detailed storm drainage analysis, water system analysis, and sewer system analysis shall be submitted to the Development Engineering Department prior to approval of a final map.

13. Prior to the recordation of the final map for any phase of the project, the improvements associated with the project must either be constructed and approved by Carson City, or the specific performance of said work secured, by providing the City with a proper surety in the amount of one hundred fifty percent (150%) of the engineer's estimate. In either case, upon acceptance of the improvements by the City, the developer shall provide the City with a proper surety in the amount of ten percent (10%) of the engineer's estimate to secure the developer's obligation to repair defects in workmanship and materials which appear in the work within one (1) year of acceptance by the City.

14. A "will serve" letter from the water and wastewater utilities shall be provided to the Nevada Health Division prior to approval of a final map.

15. The District Attorney’s Office shall approve any Covenants, Conditions & Restrictions (CC&R's) prior to recordation of the first final map.

The following conditions are required per CCMC 17.10.050

16. Three-Year Maintenance Plan. Provisions shall be made to monitor and maintain, for a period of three (3) years regardless of ownership, a maintenance plan for the common open space area. The maintenance plan for the common open space area shall, at a minimum, address the following:
    a) Vegetation management;
    b) Watershed management;
    c) Debris and litter removal;
    d) Fire access and suppression;
    e) Maintenance of public access and/or maintenance of limitations to public access; and
    f) Other factors deemed necessary by the commission or the board: vector control and noxious weed control.

17. Permanent Preservation and Maintenance. Provisions shall be made for the permanent preservation and ongoing maintenance of the common open space and other common areas using a legal instrument acceptable to the city. This shall be addressed prior to final map recordation. A homeowner's association (HOA) or similar entity must be formed for maintenance of common open space and other common areas.

18. Screening and Buffering of Adjoining Development. Provisions shall be made to assure adequate screening and buffering of existing and potential developments adjoining the proposed common open space development. Screening along East College Parkway shall consist of a sound wall consistent with the adjacent sound wall.

19. Common Open Space Restrictions. Designated common open space shall not include areas devoted to public or private vehicular streets or any land which has been, or is to be, conveyed to a public agency via a purchase agreement for such uses as parks, schools or other public facilities. This shall be demonstrated at the time of final map.

Other Conditions of Approval:

20. The required internal setback shall be as follows:

Front:	20 feet
Side:	10 feet
Street Side:	15 feet
Rear:	20 feet

These setbacks shall be stated on the final map as well as in the CC&Rs.

21. As part of the site improvement permit, the applicant must provide a landscape and irrigation plan demonstrating compliance with the applicable sections of the Development Standards in Division 3. Due to the proximity to the Carson City Airport, the types of trees allowed to be planted on-site shall be limited to those with a mature height of 35 feet or less. This limitation shall be included in the CC&Rs.

22. Deciduous trees must be planted a minimum of 5' from any city/public street, sidewalk or pathway. Evergreen trees must be planted a minimum of 10' from any city/public street, sidewalk or pathway. Fruit bearing, "non-fruiting" flowering or any other trees that drop

debris such as seed pods will not be permitted near or placed where they will eventually hang over city/public sidewalks or pathways.

23. The HOA or similar entity must maintain all common open areas including common open space, landscaping, and irrigation, including all landscaping and irrigation located within the rights-of-way.

24. Carson City is a Bee City USA. As a result, the developer shall use approximately 50% pollinator friendly plant material for any required landscaping on the project site. Also, any remaining landscape plant material selection needs to be consistent with the City's approved tree species list or other tree species, as approved by the City.

25. The developer is required to incorporate "best management practices" into their construction documents and specifications to reduce the spread of noxious weeds. The spread of invasive and noxious weeds is a significant issue in construction projects that involve land disturbance. Earth moving activities contribute to the spread of weeds, as does the use of contaminated construction fill, seed, or erosion-control products. Experience has demonstrated that prevention is the least expensive and most effective way to halt the spread of noxious and invasive weeds.

26. The developer shall enter into a pro-rata share agreement for their contribution to upsize the sewer main located downstream of this subdivision.

27. The developer shall extend water mains along the entire frontage. The water main along East College Parkway will be required to extend along the entire frontage with a fire hydrant at the east end of the extension.

28. The developer shall loop and valve the water system such that no more than 15 spaces are taken out of service in the event of a main break or system maintenance.

29. The developer shall construct full-depth half-street improvements along the property frontage along E. Nye Lane, including paving, curb, gutter, and sidewalk. E. Nye Lane shall be constructed to a collector standard. Alternatively, in lieu of full-depth half street paving, the developer may opt to instead install sidewalk and curb and gutter, along the adjacent parcel in between the section of the project fronting E. Nye Lane. Sidewalk and curb and gutter would still be required along property frontage.

30. As volunteered by the applicant, prior to approval of the final subdivision map, the developer shall provide the City with a check equal to the cost of a slurry seal of the internal public road (square footage of the asphalt section of the road multiplied by the price per square foot that Carson City has negotiated with its seasonal provider) to the satisfaction of the public works director.

31. Prior to recordation of the final map, the applicant shall execute and record an avigation and noise easement granting the Carson City Airport and Airport Authority the right of overflight in the airspace above and in the vicinity of the subject property and recognizing the right to create noise or other effects associated with the lawful operation of aircraft in such airspace. The applicant shall coordinate with the Airport Authority regarding the specific language in the document.

STAFF REPORT FOR THE PLANNING COMMISSION MEETING OF JULY 28, 2021

FILE NO: SUB-2021-0211 **AGENDA ITEM: 13.C**

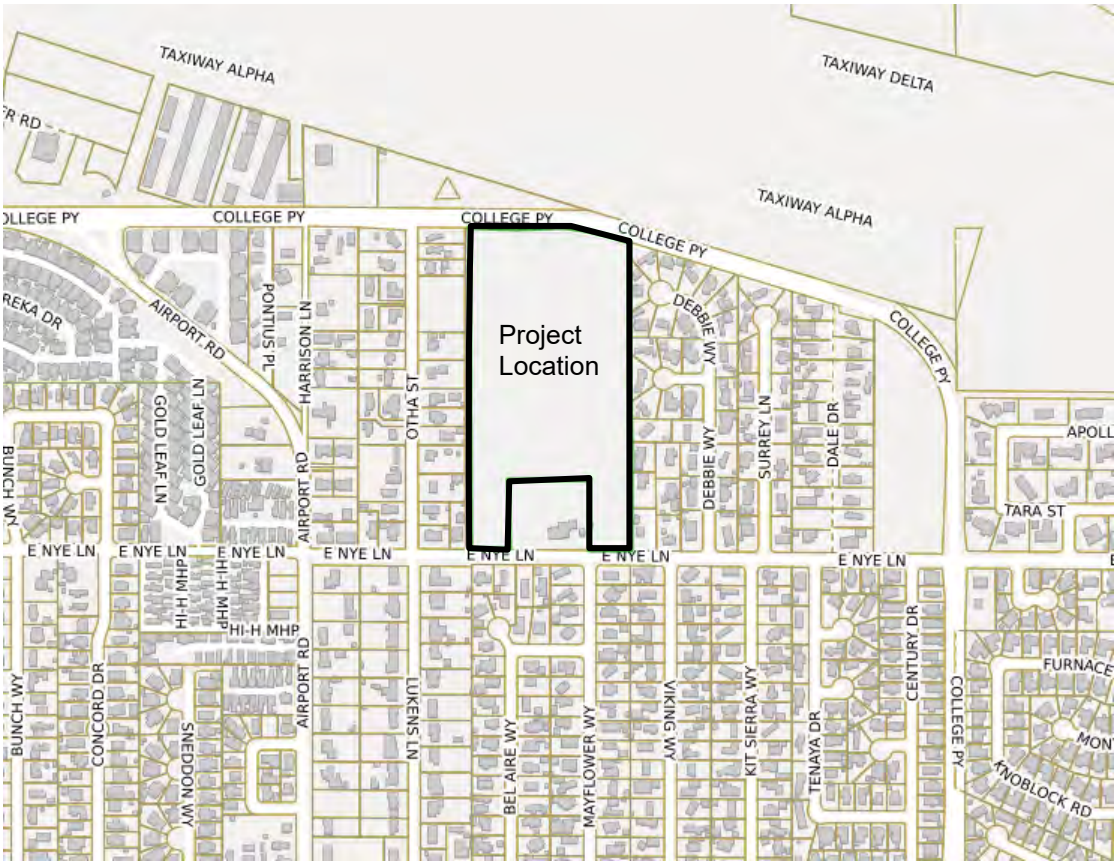
STAFF CONTACT: Heather Ferris, Associate Planner

AGENDA TITLE: For Possible Action: Discussion and possible action regarding a request for a Tentative Subdivision Map for a development known as East Nye Lane to create 61 single family residential lots on a 17.0+/- acre parcel zoned Mobile home 12,000 (MH12), located east of Otha Street and west of Debbie Way between E Nye Lane and College Parkway, APN 008-192-71. (Heather Ferris, hferris@carson.org)

Summary: The applicant is requesting to subdivide a 17.0+/- acre parcel into 61 single family residential lots with a minimum lot size of 8,000 square feet and an average lot size of 8,477 square feet. The proposed subdivision will also include 0.61 acres of common open space and an average of 4,280 square feet of private open space per lot. The applicant is seeking to subdivide the land as a Common Open Space development per the provisions of Chapter 17.10 of the Carson City Municipal Code (CCMC). The Board of Supervisors is authorized to approve a Tentative Subdivision Map. The Planning Commission makes a recommendation to the Board.

RECOMMENDED MOTIONS:
"I move to recommend approval of Tentative Subdivision Map SUB-2021-0211 based on the ability to make the required findings and subject to the conditions of approval."

VICINITY MAP:



RECOMMENDED CONDITIONS OF APPROVAL: Tentative Map

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26. The developer shall enter into a pro-rata share agreement for their contribution to upsize the sewer main located downstream of this subdivision.

27. The developer shall extend water mains along the entire frontage. The water main along East College Parkway will be required to extend along the entire frontage with a fire hydrant at the east end of the extension.

28. The developer shall loop and valve the water system such that no more than 15 spaces are taken out of service in the event of a main break or system maintenance.

29. The developer shall construct full-depth half-street improvements along the property frontage along E. Nye Lane, including paving, curb, gutter, and sidewalk. E. Nye Lane shall be constructed to a collector standard. Alternatively, in lieu of full-depth half street paving, the developer may opt to instead install sidewalk and curb and gutter, along the adjacent parcel in between the section of the project fronting E. Nye Lane. Sidewalk and curb and gutter would still be required along property frontage.

30. As volunteered by the applicant, prior to approval of the final subdivision map, the developer shall provide the City with a check equal to the cost of a slurry seal of the internal

public road (square footage of the asphalt section of the road multiplied by the price per square foot that Carson City has negotiated with its seasonal provider) to the satisfaction of the public works director.

LEGAL REQUIREMENTS: CCMC 17.05 (Tentative Maps); CCMC 17.07 (Findings); CCMC 17.10 (Common Open Space Development); NRS 278.330
SITE DEVELOPMENT INFORMATION:
SUBJECT SITE AREA: 17 +/- acres
EXISTING LAND USE: Vacant

MASTER PLAN DESIGNATION: Medium Density Residential (MDR)

ZONING: Mobile home 12,000 (MH12)

KEY ISSUES: Is the Tentative Map consistent with the required findings? Does the proposal meet the Tentative Map requirements and other applicable requirements?
SURROUNDING ZONING AND LAND USE INFORMATION
NORTH: Public Regional/ College Parkway and airport taxiway
SOUTH: Mobile home 12,000/ Single Family Residences
EAST: Mobile home 12,000/ Single Family Residences
WEST: Mobile home 12,000/ Single Family Residences

ENVIRONMENTAL INFORMATION:
FLOOD ZONE: Zone X
SLOPE: Generally flat
SEISMIC ZONE: Zone II (Moderate Severity)
FAULT: Beyond 500 feet

Previous Reviews:

CPUD-05-093: On June 9, 2005 staff completed the review of a conceptual Planned Unit Development proposing the division of the then 19.49-acre parcel into 145 lots.

PM-06-170: On January 9, 2007 the Parcel Map Review Committee approved a tentative subdivision map proposing the division of 19.10 acres into two parcels, the smallest being 2.1 acres. The final Parcel Map was recorded on January 25, 2007.

MPR-18-021: On February 20, 2018 staff completed a Major Project Review for a 300-unit multi-family apartment project.

SUB-2020-010: On August 18, 2020 staff completed the review of a conceptual common open space subdivision proposing the creation of 61 single family residential lots with a mix of common and private open space.

DISCUSSION:

The subject property is located at east of Otha Street and west of Debbie Way between E Nye Lane and College Parkway. The parcel is vacant and approximately 17.0 acres in size.

The applicant proposes to subdivide the 17 acre parcel to create 61 single family residential lots with a minimum lot size of 8,000 square feet and an average lot size of 8,477 square feet. A total of 0.6 acres of common open space will be provided and each lot will have private yards in excess of 4,000 square feet. The applicant is seeking to utilize the provisions of CCMC 17.10: Common

Open Space Development. Common Open Space developments must comply with the allowable density of the zoning district, but may have flexibility on lot size, lot width, and setbacks. The allowable density in the Mobile home 12,000 zoning district is 3.63 units per acre. The applicant proposes 3.59 units per acre.

The overall design concept is the creation of lots that are on average 8,477 square feet with the smallest lot being 8,000 square feet and the largest being 11,776 square feet. The subdivision is proposed to be accessed via a looped road with access at 2 points on E. Nye Lane and a gated emergency ingress/egress on to College Parkway. The internal roadways will include a 50-foot right-of-way with a 5-foot sidewalk on both sides of the street and on-street parking on one side of the street. Homes are anticipated to each have a standard two-car garage and a minimum 20-foot-long driveway.

Per CCMC 17.10.030.4 the periphery boundary setbacks shall be those established for yard areas by the underlying zoning district. The MH12 zoning requires minimum setbacks as follows:

Front:	20 feet
Side:	10 feet
Street Side:	15 feet
Rear:	20 feet

The proposed periphery setbacks meet or exceed the required setbacks for the MH12 zoning. Of note, all lots will front the internal streets system; therefore, the rear setback is the setback that may impact adjacent development. The required rear setback in the MH12 zoning district is 20 feet; therefore, the future homes will not be any closer to adjacent development than if using the based zoning without the Common Open Space Development provisions. Per the standard conditions for a Common Open Space Development, the project must provide for adequate screening and buffering of existing and potential development adjoining the proposed development. The proposal does not address proposed screening and buffering; therefore, staff has included a condition of approval requiring privacy a fence or wall to be installed along the perimeter (rear yards) of the project, with a sound wall along College Parkway.

The Planning Commission conducts a public hearing and advises the Board if the proposed tentative map is consistent with the provisions of the Municipal Code and NRS 278.320.

PUBLIC COMMENTS: Public notices were mailed to 145 property owners within 600 feet of the subject site pursuant to the provisions of NRS and CCMC for the Tentative Subdivision Map application. Staff has received 2 written public comments (attached). Any written comments that are received after this report is completed will be submitted prior to or at the Planning Commission meeting on July 28, 2021 depending upon their submittal date to the Planning Division.

OTHER CITY DEPARTMENT OR OUTSIDE AGENCY COMMENTS: The following comments were received from City departments. Recommendations have been incorporated into the recommended conditions of approval, where applicable.

Engineering Division:

The Engineering Division has no preference or objection to the tentative map request and offers the following conditions of approval:

- There is approximately 1500 linear feet of sewer main downstream of this proposed subdivision that is at or above capacity. This project will be required to enter a pro-rata share agreement for their contribution in order upsize the sewer main.

- Water mains are required to be extended along entire frontages per CCDS 15.1.1. The water main along East College Parkway will be required to extended along the entire frontage with a fire hydrant at the east end.
- Water should be looped and valved such that no more than 15 spaces are taken out of service in the event of a main break or system maintenance.
- Per Carson City Municipal Code, this project will need to construct full-depth half street improvements along the property frontage along Nye lane, including paving, curb, gutter, and sidewalk. Nye lane will need to be built to collector standards.
  - Alternatively, in lieu of full-depth half street paving the developer may opt to instead install sidewalk, and curb and gutter, along the adjacent parcel in between the sections of the project fronting Nye lane. Sidewalk, and curb and gutter, would still be required along property frontage.
- The project must meet all Carson City Development Standards and Standard Details.

The Engineering Division has reviewed the application within our areas of purview relative to adopted standards and practices and to the provisions of CCMC 17.07.005. The following Tentative Map Findings by the Engineering Division are based on approval of the above conditions of approval:

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.

Water: The existing water main is 8-inch PVC to the south of the property.

Sewer: There is approximately 1500 linear feet of sewer main downstream of this proposed subdivision that is at or above capacity. This project will be required to enter a pro-rata share agreement for their contribution in order upsize the sewer main.

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

The City has sufficient system capacity and water rights to meet the required water allocation for the subdivision.

3. The availability and accessibility of utilities.

Water and sanitary sewer utilities are available and accessible.

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

The road network necessary for the subdivision is available and accessible.

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.

There are no public lands adjacent to this project, except for the Airport Authority Property across College Parkway to the North.

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

Development engineering has no comment on this finding.

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

The development is in conformance with the city's master plan for streets and highways.

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

Local intersections:

- The two closest intersections are Otha St and College Pkwy and Otha St and E Nye Ln. Otha St is a local street while E Nye Ln is a minor collector and College Pkwy is a minor arterial street.

Parking and internal circulation:

- There will be parking in the form of 2 car garages and driveways. On street parking is proposed on one side of the street. The subdivision is proposed to have a loop with access on E Nye Ln. There is a proposed emergency access on College Pkwy.

Proposed and/or necessary improvements:

- This project will need to construct full-depth half street improvements along the property frontage along Nye lane. Nye lane will need to be built to collector standards.
    - The developer may opt to instead install sidewalk, and curb and gutter, along the adjacent parcel in between the sections of the project fronting Nye lane.

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

Earthquake faults: The closest fault is over 500 feet away with a slip rate of less than 0.2 mm/yr.

FEMA flood zones: The FEMA flood zone is Zone X (unshaded).
Site slope: The site slopes are minimal, between 0 to 2%.
Soils: The soil on site is mainly silty sand with layers of clayey to silty sand.

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

Development engineering has no comment on this finding.

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 subdivision has sufficient secondary access, and sufficient fire water flows.

12. Recreation and trail easements.

Development engineering has no comment on this finding.

These comments are based on the tentative map plans and reports submitted. All applicable code requirements will apply whether mentioned in this letter or not.

Fire Department:

1. The project must comply with the International Fire Code and northern Nevada fire code amendments as adopted by Carson City.

2. Hydrant spacing north of Wincrest Way is insufficient and must be corrected to meet IFC Appendix C.

Parks, Recreation & Open Space Department:

1. The City will not be responsible for any landscape or irrigation system maintenance on the project. All landscaping and landscape maintenance in the right of way will be the sole responsibility of the owner. The developer is required to maintain all common landscape and open space areas within the development including any landscaping in the street(s) right of ways in perpetuity.

2. Carson City is a Bee City, USA. As a result, the developer shall use approximately 50% pollinator friendly plant material for any required landscaping on the project site. Also, any remaining landscape plant material selection needs to be consistent with the City's approved tree species list or other tree species, as approved by the City. The Carson City Pollinator Plant list and other plant selection resources can be found on the City's website.

3. The developer is required to incorporate "best management practices" into their construction documents and specifications to reduce the spread of noxious weeds. The spread of invasive and noxious weeds is a significant issue in construction projects that involve land disturbance. Earth moving activities contribute to the spread of weeds, as does the use of contaminated construction fill, seed, or erosion-control products. Experience has demonstrated that prevention is the least expensive and most effective way to halt the spread of noxious and invasive weeds. Preventing the establishment or spread of weeds relies upon:
   - Educating workers about the importance of managing weeds on an ongoing basis;
   - Properly identifying weed species to determine most appropriate treatment strategies;
   - Avoiding or treating existing weed populations; and
   - Incorporating measures into projects that prevent weed seeds or other plant parts from establishing new or bigger populations such as certification of weed-free products.

   For more information on "best management practices" please contact The Carson City Parks, Rec. and Open Space Dept. by phone or email through the contacts listed at the top of this document.

4. Deciduous trees must be planted a minimum of 5' from any city/public street, sidewalk or pathway. Evergreen trees must be planted a minimum of 10' from any city/public street, sidewalk or pathway. Fruit bearing, "non-fruiting" flowering or any other trees that drop debris such as seed pods will not be permitted near or placed where they will eventually hang over city/public sidewalks or pathways.

5. Carson City Municipal Code: Title 18, Division 3 should be reviewed by any/all parties involved in the proposed landscape design prior to landscape plans being submitted to the city for final approval of a building permit.

6. The project is subject to the collection of Residential Construction Tax (RCT), compliant with NRS Chapter 278 and Carson City Municipal Code (CCMC 15.60).

TENTATIVE MAP FINDINGS: Staff recommends approval of the Tentative Subdivision Map based on the findings below and in the information contained in the attached reports and documents, pursuant to CCMC 17.05 (Tentative Maps); 17.07 (Findings) and NRS 278.349, subject to the recommended conditions of approval, and further substantiated by the applicant's written justification. In making findings for approval, the Planning Commission and Board of Supervisors must consider:

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.

The development is required to comply with all applicable environmental and health laws concerning water and air pollution and disposal of solid waste. A copy of the proposed tentative map was submitted to the Nevada Division of Water Resources and the Nevada Division of Environmental Protection (NDEP) on June 18, 2021. An intent to serve or a will serve letter from the municipal sewer service provider is required at the time the final map is presented to the State for final approval and signature. The Public Works department has advised of adequate capacity to meet water demand. There is approximately 1500 linear feet of sewer main downstream of this proposed subdivision that is at or above capacity. This project will be required to enter a pro-rata share agreement for their contribution in order upsize the sewer main. The utility design must meet all applicable development standards related to water and sewer design.

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

Water supplied to the development will meet applicable health standards. The City has sufficient system capacity and water rights to meet the required water allocation for the subdivision.

3. The availability and accessibility of utilities.

All utilities are available in the area to serve this development. Water mains are required to be extended along entire frontages per CCDS 15.1.1. The water main along East College Parkway will be required to extended along the entire frontage with a fire hydrant at the east end. Water will be required to be looped and valved such that no more than 15 residents are taken out of service in the event of a main break or system maintenance. There is approximately 1500 linear feet of sewer main downstream of the project site that is at or above capacity. This project will be required to enter a pro-rata share agreement for their contribution in order to upsize the sewer main. The utility design will be reviewed at the time of a site improvement permit to ensure it meets all applicable standards, including applicable conditions of approval.

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

The project is located adjacent to existing single-family developments which are served by the existing public services including schools, sheriff, transportation facilities, and parks. Per the July 16, 2021 email received from the School District they do not have any additional comments beyond the information provided for previous projects and have indicated that the School District will be re-districting which should help. For previous projects the School District indicated that they remain concerned about capacity and

advised that for every 100 new homes it expects about 30 new students. With most of the schools now at capacity, the limited capital funding for new facilities, it is concerned, as it cannot "rezone" its way out of the problem. Development Engineering has reviewed the development for impacts to water, sewer, storm drainage, and roadway systems. As conditioned, the existing infrastructure has been found to be sufficient to supply water and sanitary sewer and the City has capacity to meet the demand. There is approximately 1500 linear feet of sewer main downstream of the project site that is at or above capacity. This project will be required to enter a pro-rata share agreement for their contribution in order to upsize the sewer main. The road network will be adequate to serve the project. Staff is recommending conditions of approval requiring either the construction of full-depth half street improvements along the property frontage on E Nye Lane or the installation of sidewalk, curb and gutter, along the adjacent parcel in between section of the project fronting E Nye as well as along the property frontage. The Fire Department has also reviewed the development. At the time a site improvement permit is submitted the project will be reviewed to ensure compliance with the currently adopted edition of the International Fire Code and the Northern Nevada Fire Code Amendments as adopted by Carson City, including the Hydrant spacing north of Wincrest Way.

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 proposed subdivision is not adjacent to public lands.

6. Conformity with the zoning ordinance and land use element of the City's Master Plan.

The proposed common open space development must comply with the allowable density of the zoning district, but may have flexibility on lot size, lot width, and setbacks. The allowable density in the MH12 zoning district is 3.63 units per acre. The applicant proposes 3.59 units per acre.

Per Division 2 of the Development Standards, the applicant must provide two parking spaces per dwelling unit provided the internal or abutting streets provide for on-street parking. The internal streets will provide for parking on one side of the road and each lot will provide for a minimum of two parking spaces, typically via a two-car garage.

As part of the requirements for a Common Open Space Development the applicant must provide for 250 square feet of open space per dwelling unit, which may include private open space and/or common open space. At least 100 square feet per dwelling unit of common open space must be designed for recreational use. This translates to a total open space requirement of 21,350 square feet (0.49 acres). The applicant proposes approximately 6.59 acres of open space, including both private and common areas. Staff has recommended a condition of approval that an open space diagram be submitted at the time of application for site improvement permit, demonstrating compliance with the open space requirements.

The proposed periphery setbacks meet or exceed the required setbacks for the MH12 zoning. Of note, all lots will front the internal streets system; therefore, the rear setback is the setback that may impact adjacent development. The required rear setback in the MH12 zoning district is 20 feet; therefore, the future homes will not be any closer to adjacent development than if using the based zoning without the Common Open Space Development provisions. Per the standard conditions for a Common Open Space Development, the project must provide for adequate screening and buffering of existing

and potential development adjoining the proposed development. The proposal does not address proposed screening and buffering; therefore, staff has included a condition of approval requiring privacy a fence or wall to be installed along the perimeter (rear yards) of the project, with a sound wall along College Parkway.

The Master Plan designation of the subject parcel is Medium Density Residential. The Medium Density Residential designation provides for single family residential neighborhoods at a density of 3-8 dwelling units per acre. Compatible zoning districts include Single Family 6,000, Mobilehome 6,000, Single Family 12,000, and Mobilehome 12,000. Properties in this area are of similar size and density to the proposed subdivision.

7. General conformity with the City's Master plan for streets and highways.

The development is in conformance with the City's Master Plan for streets and highways.

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

The road network will be adequate to serve the project. Staff is recommending conditions of approval requiring either the construction of full-depth half street improvements along the property frontage on E Nye Lane or the installation of sidewalk, curb and gutter, along the adjacent parcel in between section of the project fronting E Nye as well as along the property frontage.

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

The site is relatively flat, and there are no faults within 500 feet. The site includes areas designated as FEMA zone X (area with minimal flooding risk).

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

The proposed tentative map has been routed to the Nevada Department of Environmental Protection (NDEP) and the Nevada Division of Water Resources. A will serve letter for the sewer and water will be required prior to the State signing the Final Map.

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 Public Works Department has reviewed the project in conjunction with the Fire Department. There is adequate access for emergency services and adequate fire flows to serve the project. At the time a site improvement permit is submitted the plans will be reviewed to ensure compliance with the currently adopted edition of the International Fire Code and the Northern Nevada Fire Code Amendments as adopted by Carson City and all other applicable development standards.

12. Recreation and trail easements.

There are no proposed recreational or trail easements with this project and none are required per the Unified Pathways Master Plan. Staff is recommending conditions of approval requiring either the construction of full-depth half street improvements along the

property frontage on E Nye Lane or the installation of sidewalk, curb and gutter, along the adjacent parcel in between section of the project fronting E Nye as well as along the property frontage. These improvements will provide linkages to existing sidewalks in the project area.

Attachments

Public Comments
Application- SUB-2021-0211

From: Norma Sanchez Quintero
To: Heather Ferris
Subject: SUB-2021-0211
Date: Monday, July 19, 2021 6:32:10 PM

Hi, my name is Norma. I have questions that I would be interested to know is , the street E. Nye will be added sidewalks or will have some improvement on this street (E.Nye), ? The traffic on this street would increase. Another concern of my person is that it is driven on this street at a speed much higher than established. I live on the corner of Mayflower way and E.Nye . I am interested in attending the next July 28 and know how the city cares about the safety of the neighborhood.

Norma Sanchez Quintero
Mayflower way (2983)
Carson city NV. 89706

Sent from Mail for Windows 10

From: ROY & KATHY TERRELL
To: Planning Department
Subject: SUB-2021-0211
Date: Monday, July 19, 2021 11:08:51 AM

To Planning Division

In regards to the new subdivision tentative plans between East Nye Lane and College Parkway.
I live at 2930 Mayflower Way just off Nye Lane and am very concerned about the poor conditions of Nye Lane especially at intersection of Nye and Airport. Even with the current traffic, it is in very bad condition. With any rain, it floods and the potholes can't be seen and is dangerous for drivers, bike riders, walkers and the multitude of children trying to navigate from the school buses. I would hope that sidewalks, storm drains and new pavement will be included in the project for Nye Lane.
Also, the " head shop" that was allowed to open at the corner of Nye and Airport Rd. is a completely unnecessary decision for this neighborhood considering the amount of children and adults that do not appreciate its presence. Better choices from the planning division is paramount as to the desirability of our semi run down area.
Also, is this going to be a mobile home park or a mobile sitting permanently on a foundation? I understand it is approximately a quarter of an acre. As the appraised value of our homes in this area go up, we would like to see our streets improved as well.
I will attend the meeting at the community center on the 28th.
Kathy and Roy Terrell
2930 Mayflower Way Carson City (775-303-3040)

Sent from my iPad

EAST NYE LANE

TENTATIVE COMMON OPEN SPACE SUBDIVISION MAP

JUNE 17, 2021

Revised June 30, 2021

Prepared For:

Ms. Sandi West

4606 E. Meadow Drive, Phoenix, AZ 85032

Prepared By:

Manhard CONSULTING

241 Ridge Street, Suite 400 Reno, NV 89501

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LIST OF FIGURES

APPENDICES

- Tentative Map Application with Applicant's Acknowledgement
- Property Owner Affidavit
- Copy of Conceptual Map Letter
- Proposed Street Names
- Master Plan Policy Checklist
- Tentative Map Plan Set (includes grading and Drainage Plan, Utility Plan)
- Conceptual Drainage Study
- Preliminary Geotechnical Report
- Preliminary Sewer Report
- Preliminary Water Report
- Traffic Study

PROJECT LOCATION

The project site is +/- 17.00 acres, and is located between E. Nye Lane and College Parkway, approximately 1/10 mile east of Airport Road (APN 008-192-71).

Figure 1: Project Location

EXISTING CONDITIONS

The project site is undeveloped and is surrounded to the east, south, and west by existing single family residential development. The Carson City Airport is north of the site, across College Parkway.

The project site has a Master Plan designation of Medium Density Residential and is zoned Mobilehome 12,000 (MH12).

Figure 2: Master Plan Designation- Medium Density Residential (MDR)

Figure 3: Zoning Designation- Mobile Home – 12,000 (MH12)

Figure 4: Surrounding Property Designations

Direction	Master Plan	Zoning	Existing Land Use
North	Public/Quasi-Public	Public Regional	Airport
East	Medium Density Residential	Mobilehome 12,000	SF Residential
South	Medium Density Residential	Mobilehome 12,000	SF Residential
West	Medium Density Residential	Mobilehome 12,000	SF Residential

APPLICATION REQUEST

The enclosed application is a request for:

1) A **Tentative Common Open Space Subdivision Map** to create a 61 single family residential lots on a +/- 17 acre parcel, meeting the established requirements of Chapter 17.10 Common Open Space Development.

PROJECT DESCRIPTION & JUSTIFICATION

The East Nye Lane subdivision is a proposed single family residential subdivision with 61 residential lots, and a mix of common and private open space. The project density is 3.59 units per acre (61 units/ 17.00 acres). It is proposed as a Common Open Space development in accordance with Carson City Municipal Code Chapter 17.10, which allows for alternate site layouts that achieve a more efficient use of land, and has been designed to meet established requirements including residential density, lot area, setback, off-street parking, and open space. Although home designs are not finalized, it is anticipated that there will be four manufactured home designs, ranging from 1,500 sq. ft. to 1,800 sq. ft. (see Figure 7: Conceptual Building Elevations).

As you will see detailed on the Site Plan (Figure 6), there are 61 proposed lots, accessed by a loop road. In accordance with Common Open Space development standards, CCMC Section 17.10.046, the open space requirement of 250 sq. ft. per dwelling is met through private open space. However, there is additional common open space adjacent to Nye Lane and the existing parcel on the interior of the site ("interior parcel"). The project contains a mix of common area/open space and private open space:

- Private Open Space: a minimum of 4,280 sq. ft. per unit (typical 80' x 100' lots, with conceptual building designs)
- Total Common Open Space: +/- .6 acres (26,640 sq. ft.)

The existing MH12 zoning designation permits single family dwellings with a density of 3.63 units per acre. The proposed single family subdivision is an appropriate land use, as the use is permitted in the MH12 zoning designation and it is adjacent to existing single family residential development with similar density. The interior parcel (not a part of this Tentative Map) that is also zoned MH12.

Figure 5: Project Summary

Project Summary	
Total Area	+/- 17.00 acres
Total Number of Lots	61
Project Density	3.59 units/acre
Maximum Allowed Density	3.63 units/acre
Average Lot Size	8,477 sq. ft.
Parking Required	122 2 spaces per dwelling unit
Parking Provided	122 2 per unit (garage), plus 122 additional driveway spaces, plus on-street parking
Total Common Area/Open Space	26,640 sq. ft. (.6 acres)
Total Private Open Space	Minimum 4,280 sq. ft. per unit (based on 8,000 sq. ft. typical lot with conceptual building design)

Figure 6: Site Plan

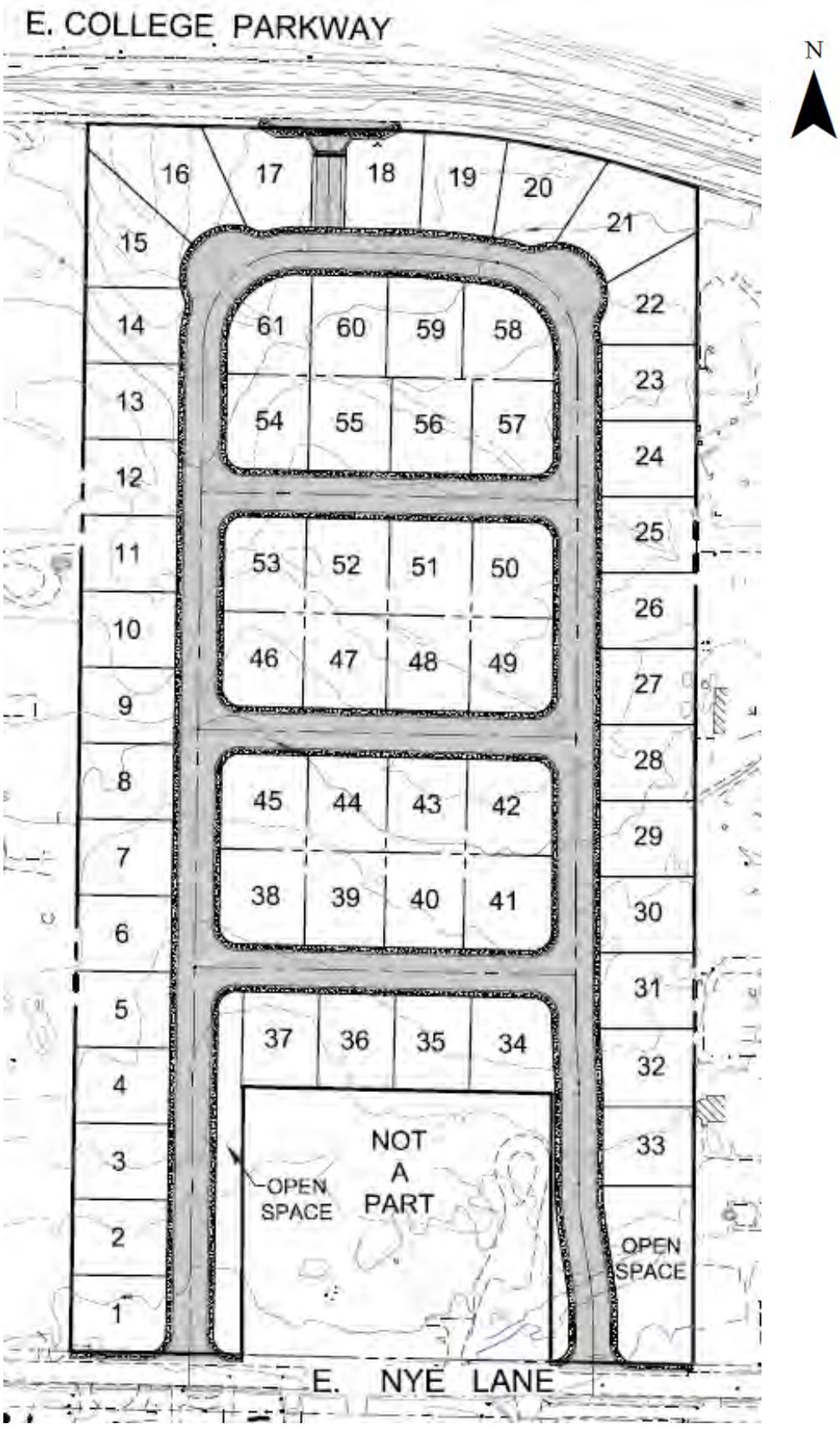


Figure 7: Conceptual Building Elevations

Figure 7: Conceptual Building Elevations, continued

COMMON OPEN SPACE DEVELOPMENT

This project is proposed as a Common Open Space Subdivision, meeting common open space standards established in Chapter 17.10, Common Open Space Development. The design achieves a more efficient uses of the land by providing for common open space adjacent to the existing interior lot, and private open space for each parcel. The common open space will be maintained by a Homeowners Association or equivalent as approved by Carson City.

As shown on the Site Plan and Figure 8, Development Standards, this common open space development has been designed to appropriate development standards, particularly related to setbacks and lot size.

- Minimum lot size established with the Tentative Map of 8,000 sq. ft.
- Minimum front yard setback of 20 ft.
- Minimum rear yard setback of 20 ft.
- Maintain Periphery Boundary Setbacks

Figure 8: Common Open Space Development Standards

	Development Standard	Proposed
Density	3.63 units/acre The total number of dwelling units shall not exceed the total number of dwelling units allowed by the underlying zoning district.	3.59 units/acre (61 units/17 acres); 1 unit per single family lot
Lot Area	No minimum required lot area.	Lots range from 8,000 sq. ft. to 11,776 sq. ft.
Lot Width	Established with Tentative Map	80 ft. for a typical lot
Lot Depth	N/A	N/A
Front Setback	Established with Tentative Map	20 ft
Side Setback	Established with Tentative Map	10 ft.
Street Side Setback	Established with Tentative Map	15 ft.
Rear Setback	Established with Tentative Map	20 ft.
Periphery Boundary Setbacks	Front- 20 ft. Side- 10 ft. Street Side- 15 ft. Rear-20 ft. Established for yard areas by the underlying zoning district.	Front- 20 ft. min. Side- 20 ft. min. Street Side- 15 ft. min. Rear- 20 ft. min.
Height	26 ft.	Will not exceed 26 ft.
Parking	122 (61 x 2) 2 spaces per dwelling unit with parking provided on one side of the street	122 minimum (61 x 2) 2 per unit (garage), plus 122 additional driveway spaces, plus on-street parking

Open Space

The project landscape area will include developer-installed front yards that meet CCMC Title 18 Appendix, Division 3 – Landscaping requirements. Typical 8,000 sq. ft. lots (minimum lot area) will have a minimum

of 4,280 sq. ft. of private open space (utilizing the minimum 8,000 sq. ft. lot size with conceptual building elevations). The private open space includes private yard areas with no dimension less than 15 ft., as demonstrated on Figure 9, Open Space Exhibit.

Figure 9: Open Space Exhibit (full size exhibit in Plan Set)

SITE ANALYSIS

Carson City Municipal Code Chapter 17.10.035 *Site analysis to determine common open space and lot size variations* requires assessment of the project area in order to propose a Common Open Space development. Since the site is virtually flat, has no significant vegetation, drainageways, wetlands, flood, or seismic hazards, most of the items required in a Site Analysis are already addressed in this document and the associated Tentative Map plan set.

1. **Location Map. A general location map providing the context of location and vicinity of the site.**

   The Title Page of the Plan Set and Figure 1 of this document depict the location and vicinity of the site.

2. **Land Use and Zoning. Current and planned land use and adopted zoning on the site and adjacent adopted zoning and current, planned and approved, but unbuilt land uses.**

   See Figures 2, 3, and 4, which depict and describe the Master Plan, zoning, existing and approved uses for the site and surrounding properties.

3. **Existing Structures. A description of the location, physical characteristics, condition and proposed use of any existing structures.**

   There are no existing structures on the site.

4. **Existing Vegetation. A description of existing vegetation, including limits of coverage, and major tree sizes and types. In the instance of heavily wooded sites, typical tree sizes, types and limits of tree coverage may be substituted.**

   Vegetation includes light grass and has been stripped of previous sagebrush.

5. **Topography. An analysis of slopes on the site, and adjacent to the site, using a contour interval of 5 feet, or at a contour interval appropriate for the site and agreed to by the director, identifying areas with 15 percent or greater slope, areas with 33 percent or greater slope and areas identified as "skyline" on the adopted Carson City skyline map.**

   There are no slopes over 15% on or adjacent to the property. The site is relatively flat, sloping slight towards the southeast, draining towards East Nye Lane at approximately one percent.

6. **Soil. An analysis of the soil characteristics of the site using Soil Conservation Service (SCS) information.**

   The attached Geotech report includes an analysis of the soil characteristics, noting that the site is suitable for the intended use. All test pits encountered granular blends of clayey to silty sand of relatively low to non-plastic range. Moderately cemented granular soils with varying degrees of weathering were encountered in each test pit ranging from three feet to six feet below existing grade. A surface layer of light brown, loose, silty sand was typical to depths of two feet.

7. **Natural Drainageways. Identification of natural drainageways on and adjacent to the site**.

   No Drainageways were identified on the site.

8. **Wetlands and Water Bodies. Identification of existing or potential wetlands and water bodies on the site.**

   There are no water bodies or wetlands on the site.

9. **Flood Hazards. Identification of existing and potential flood hazards using Federal Emergency Management Agency (FEMA) information.**

   The project area is designated as Flood Zone X, which indicates a minimal flood hazard.

10. **Seismic Hazards. Identification of seismic hazards on and/or near the site, including location of any Halocene faults.**

    No faults or seismic hazards are known to exist on the site.

11. **Easements. A description of the type and location of any easements, public and/or private, on the site.**

    Sheets 2 and 3 of the Tentative Map Plan Set displays the known public utility easements on site.

12. **Utilities. A description of existing or available utilities, and an analysis of appropriate locations for water, power, sanitary sewer and storm water sewer facilities.**

    As depicted on Sheets U1 of 10 and U2 of 10 of the Tentative Map, the proposed utility design:

    Water

    The project is intended to utilize access and existing infrastructure along East Nye Lane (6 inch waterline) and the 8-inch waterline in East College Parkway and Otha. Proposed improvements include an 8-inch waterline within the project, with new 8-inch waterline ties at both project street entrances at the south end of the project on East Nye Lane. The north end of the project will use an 8-inch waterline tie from the project at College Parkway with a connection point at the intersection or Otha Street and College Parkway. The analysis of the water system shows that the proposed design is adequate to meet the demands of the development. Please see the Water System Analysis included with the application package for complete details.

    Power

    Will be proposed with final design. However, there is power in the area.

    Sanitary Sewer

    Sewage flow from the East Nye Lane project will be conveyed via new public 8" diameter sewer mains that ultimately discharge into the existing 8" sanitary sewer main located in east Nye Lane. Please see the Preliminary Sewer Report included with the application package for complete details.

    The proposed 8" sanitary sewer mains proposed within the development will adequately serve the project as planned. And has adequate capacity to carry the project's peak sewage flow in conformance

with the guidelines outlined in the Carson City Development Standards and the Recommended Standards for Wastewater Facilities.

Storm Water

A preliminary hydrology report has been prepared to address the impact of project flows from this project. All drainage for the site will be contained in swales and the roadway and will travel to the storm drain inlets. From the inlets, the flow will be routed through the proposed storm drain system to the detention/retention basin(s). All onsite drainage will be designed to intercept the 100[year storm flows and convey them to the proposed detention/retention facility. Please see the Preliminary Drainage Report included with the application package for complete details.

13. **Appropriate Access Points. An analysis of appropriate access points based upon existing and proposed streets and highways and site opportunities and constraints.**

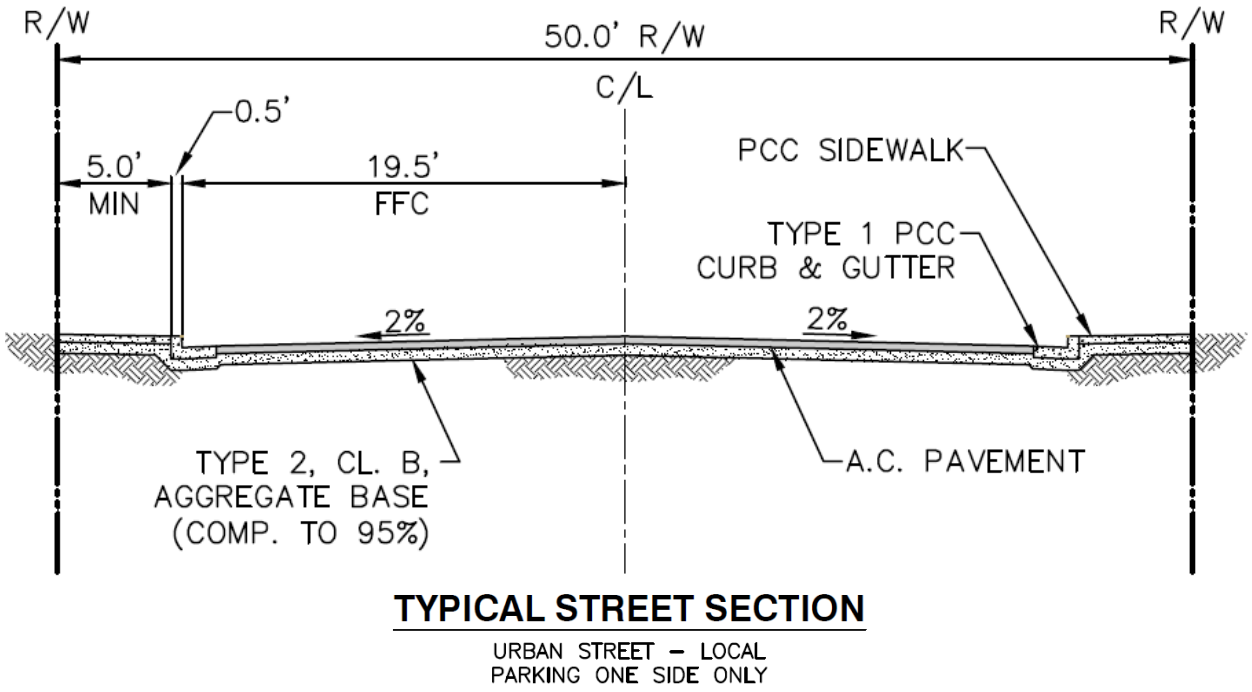
    Because of the unique shape of the parcel, the site is proposed to be accessed by a loop road, with access at 2 points to E. Nye Lane. Additional gated emergency access onto College Parkway (right-in/right-out) is proposed. The emergency access will be signed and striped for emergency access only in accordance with Carson City regulations. A traffic impact study has been prepared that demonstrates all studied intersections (based on comments from SUB-2020-0010 and scoping with Carson City staff) operate essentially the same with or without the project traffic.

VEHICLE AND PEDESTRIAN ACCESS

Vehicular Access

Because of the unique shape of the parcel, the site is proposed to be accessed by a loop road, with access at 2 points to E. Nye Lane. The typical roadway section includes a 50 ft. right-of-way with a 5 ft. sidewalk on both sides of the street, two travel lanes, and on-street parking on one side of the street. Additional gated emergency access onto College Parkway (right-in/right-out) is proposed. The emergency access will be signed and striped for emergency access only in accordance with Carson City regulations.

Figure 10: Typical Street Section



Pedestrian Access

Pedestrian access will be provided throughout the project site through 5 ft. sidewalks located on both sides of the street. There will be access to E. Nye Lane and to College Parkway. Curb, gutter, and sidewalk is provided across the property frontage.

UTILITIES AND PUBLIC SERVICES

Water

The project is intended to utilize access and existing infrastructure along East Nye Lane (6 inch waterline) and the 8-inch waterline in East College Parkway and Otha. Proposed improvements include an 8-inch waterline within the project, with new 8-inch waterline ties at both project street entrances at the south end of the project on East Nye Lane. The north end of the project will use an 8-inch waterline tie from the project at College Parkway with a connection point at the intersection or Otha Street and College Parkway. The analysis of the water system shows that the proposed design is adequate to meet the demands of the development. Please see the Water System Analysis included with the application package for complete details.

Sewer

Sewage flow from the East Nye Lane project will be conveyed via new public 8" diameter sewer mains that ultimately discharge into the existing 8" sanitary sewer main located in east Nye Lane. Please see the Preliminary Sewer Report included with the application package for complete details.

The proposed 8" sanitary sewer mains proposed within the development will adequately serve the project as planned. And has adequate capacity to carry the project's peak sewage flow in conformance with the guidelines outlined in the Carson City Development Standards and the Recommended Standards for Wastewater Facilities.

Hydrology

A preliminary hydrology report has been prepared to address the impact of project flows from this project. All drainage for the site will be contained in swales and the roadway and will travel to the storm drain inlets. From the inlets, the flow will be routed through the proposed storm drain system to the detention/retention basin(s). All onsite drainage will be designed to intercept the 100[year storm flows and convey them to the proposed detention/retention facility. Please see the Preliminary Drainage Report included with the application package for complete details.

PARKING

Off-street parking will be provided through a mix of garage spaces and driveway spaces. Additionally, on-street parking is available on one side of the street in accordance with Carson City's Urban Streets Roadway Section (C-5.1.8); see Figure 10, Typical Street Section.

Figure 11: Parking Calculations

	CCMC Required Spaces	Number of Required Spaces	Spaces Provided
Single Family Dwelling Unit	2 spaces / dwelling unit with on-street parking provided on one side of the street	122 (61 x 2)	122 (61 x 2) 2 car garage plus 2 additional driveway spaces per lot
TOTAL		**122**	**122**

TRAFFIC

A comprehensive Traffic Impact Study has been submitted with this application. It evaluates the potential traffic impacts associated with the development of the proposed subdivision on East Nye Lane. The project is anticipated to generate approximately 576 daily trips, 45 AM peak hour trips and 60 PM peak hour trips.

All studied intersections operate essentially the same with or without the project traffic. The addition of project traffic (60 peak hour trips) has no significant impact on traffic operations.

No intersection improvements are justified as a result of the project. However, improvements at College Parkway and Airport Road are recommended to improve the functionality of the intersection. Proposed improvements include converting the striped median on the west leg on College Parkway to a northbound left turn receiving lane allowing for two-stage left-turns from the northbound approach. This modification would improve the operation for the northbound left turn from an LOS E to an LOS C.

Recommendations related to the project are:

- Construct half street improvements and sidewalk on the East Nye Lane property frontage.
- At the College Parkway/ Airport Road intersection, consideration should be given to converting the striped median on the west leg of College Parkway to a northbound left turn receiving lane.

Figure 12: Trip Generation

Table 3: Trip Generation Estimates

ITE Land Use	Size	Daily	AM Peak			PM Peak		
			Total	In	Out	Total	In	Out
Single-Family Detached Housing (210)	61 units	576	45	11	34	60	38	22

Source: Headway Transportation, 2021

Figure 13: Level of Service and Delay Results

Intersection	Control	AM Peak				PM Peak			
		Future Year		Future Year Plus Project		Future Year		Future Year Plus Project	
		LOS	Avg Delay[1] (sec/veh)	LOS	Avg Delay[1] (sec/veh)	LOS	Avg Delay[1] (sec/veh)	LOS	Avg Delay[1] (sec/veh)
1. College Parkway/ Airport Road	Side Street STOP								
Westbound Left		A	7.8	A	7.8	A	9.3	A	9.3
Northbound Left		B	19.2	C	20.1	E	37.5	E	40.0
Northbound Right		A	9.1	A	9.1	B	10.9	B	10.9
Overall		A	2.6	A	3.0	A	3.7	A	4.2
2. Airport Road/ East Nye Lane	Side Street STOP								
Eastbound Approach		B	10.7	B	10.8	B	13.1	B	13.7
Westbound Approach		B	11.3	B	11.7	B	14.1	C	15.0
Northbound Left		A	7.4	A	7.4	A	7.6	A	7.6
Southbound Left		A	7.6	A	7.6	A	7.6	A	7.7
Overall		A	4.4	A	5.0	A	4.6	A	5.2
3. East Nye Lane/ West Site Access	Side Street STOP								
Eastbound Left		N/A		A	7.4	N/A		A	7.5
Southbound Approach				A	9.1			A	9.2
Overall				A	1.1			A	0.8
4. East Nye Lane/ East Site Access	Side Street STOP								
Eastbound Left		N/A		A	7.4	N/A		A	7.5
Southbound Approach				A	9.0			A	9.3
Overall				A	1.2			A	0.9

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 Tentative Map application.

The project complies with the Master Plan and accomplishes the following objectives.

Chapter 3: A Balanced Land Use Pattern

1. Goal 1.1c-Water Conservation: The proposed project is expected to encourage water conservation efforts through low-water landscaping, low-flow fixtures, and/or other water saving devices.
2. Goal 1.1e-Sustainable Construction Techniques: The proposed project is expected to utilize sustainable building materials and construction techniques.
3. Goal 1.5d–Coordination of Services: The site is located to be adequately served by city services including fire and sheriff services.
4. Goal 3.3d-Floodplain and Hazard Area Development: The proposed development is not within the 100-year floodplain or other hazardous areas.
5. Mixed Use Employment Policy 1.4-Location: The site is located on existing arterial and collector streets.

Chapter 4: Equitable Distribution of Recreational Opportunities

The proposed project does not include public recreational facilities.

Chapter 5: Economic Vitality

1. Goal 5.1j-Housing Mix: The proposed development will provide a housing type that will be appealing to first time homebuyers, young professionals, and downsizers, consistent with the City's goals to encourage a mix of housing for the labor force and the non-labor force.

Chapter 6: Livable Neighborhoods and Activity Centers

1. Goal 6.1c-Variety and Visual Interest: The proposed development will incorporate defined entrances and pedestrian connections, landscaping, and other features consistent with the City's Development Standards.
2. Goal 6.2a-Neighborhood Compatibility: The proposed development will provide appropriate height, density, and setback transitions to ensure combability with surrounding development.
3. Goal 9.4b-"Spot" Rezoning: The proposed project will not require "spot" rezoning of the site since there is no zone change required and the MH12 zoning is consistent with adjacent properties.

Chapter 7: A Connected City

1. Goal 11.2b-Transit Supportive Development: There are two bus transit stops (JAC) approximately 1 mile from the project site that access routes 2A and 2B.

Chapter 8: Specific Plan Areas

The proposed project is not within a Specific Plan Area.

TENTATIVE 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.**

   The proposed project has been designed in accordance with the required 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. All necessary infrastructure to serve the project will be completed by the developer and adequate capacity exists to accommodate additional demands generated by the project. Refer to attached engineering reports for specific details.

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. It will be provided by Carson City, conform to the applicable health standards, and fulfill quantity requirements for residences.

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

   All necessary utilities are currently in place or will be in place in order to adequately serve the proposed project. Any new infrastructure improvements will be constructed to Carson City standards and will be paid for by the developer.

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

   Police services are currently provided by the Carson City Sheriff's Office. Fire protection will be provided by the Carson City Fire Department. The project meets the requirements of the Fire Department. The Regional Transportation Commission is responsible for transportation in and around the project area. Carson City Parks Department provides recreational and parks services, although this project is not expected to impact recreational services. Educational services are provided by Carson City School District.

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 not adjacent to public lands.

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

The proposed single family residential development is consistent with the existing zoning MH12 zoning designation and is in conformance with the Medium Density Residential Master Plan designation.

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

The proposed project includes access to a E. Nye Lane, with gated emergency access only to College Parkway and is in conformance with the City's Master Plan for streets and highways.

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

A comprehensive Traffic Impact Study has been submitted with this application. It evaluates the potential traffic impacts associated with the development of the proposed subdivision on East Nye Lane. The project is anticipated to generate approximately 576 daily trips, 45 AM peak hour trips and 60 PM peak hour trips.

All studied intersections operate essentially the same with or without the project traffic. The addition of project traffic (60 peak hour trips) has no significant impact on traffic operations.

No intersection improvements are justified as a result of the project. However, improvements at College Parkway and Airport Road are recommended to improve the functionality of the intersection. Proposed improvements include converting the striped median on the west leg on College Parkway to a northbound left turn receiving lane allowing for two-stage left-turns from the northbound approach. This modification would improve the operation for the northbound left turn from an LOS E to an LOS C.

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

As fully addressed in the Site Analysis, site topography is relatively flat and is characterized by light grass. The parcel is designated by FEMA as Zone X, Area of Minimal Flood Hazard. The site will be designed to accommodate peak flow events and proposes a stormwater retention basin on the south of the development. A Preliminary Geotechnical Investigation is included with this submittal package which includes an analysis of the soil characteristics, noting that the site is suitable for the intended use.

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.

No recreation or trail easements are proposed.

Additional Tentative Map Findings- NRS 278.349(3)

(k) The submission by the subdivide of an affidavit stating that the subdivider will make provision for payment of the tax imposed by chapter 375 of NRS and for compliance with the disclosure and recording requirements of subsection 5 of NRS 598.0923, if applicable, by the subdivider or any successor in interest

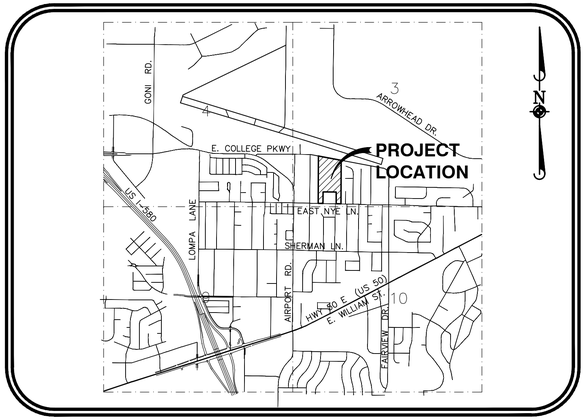
The developer agrees to make provisions for the payment of the tax imposed by chapter 375 of NRS and for compliance with the disclosure and recording requirements of subsection 5 of NRS 598.0923, if applicable.

TENTATIVE MAP

FOR

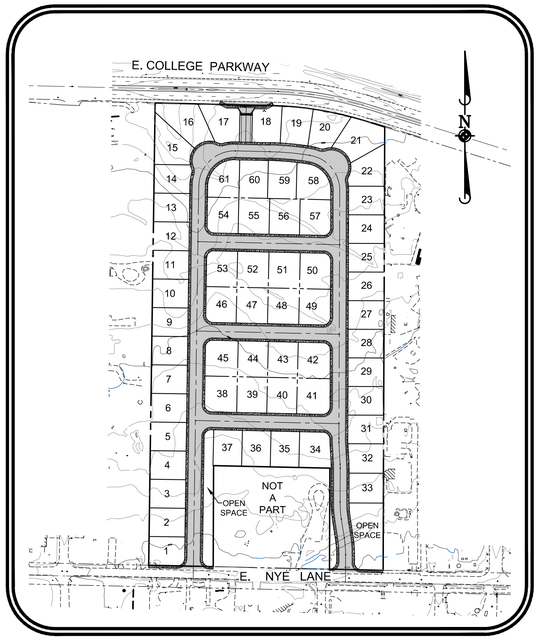
EAST NYE LANE - APN 008-192-71

CARSON CITY NEVADA



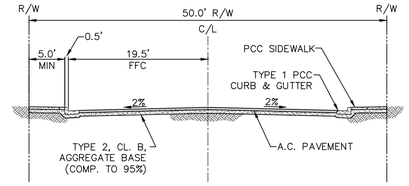
VICINITY MAP

SCALE: N.T.S.



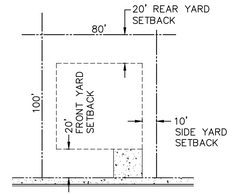
SITE MAP

SCALE: 1"=200'



TYPICAL STREET SECTION

URBAN STREET – LOCAL
PARKING ONE SIDE ONLY



TYPICAL LOT

LEGEND:

- PROPOSED A.C.
- PROPOSED CONCRETE
- PROPOSED SANITARY SEWER
- PROPOSED STORM DRAIN
- PROPOSED WATER MAIN

SHEET INDEX

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

PROPERTY ADDRESS: E. NYE LANE
ASSESSOR PARCEL NO.: 008-192-71
MASTER PLAN DESIG.: MEDIUM DENSITY RESIDENTIAL
CURRENT ZONING: MH12
PARCEL SIZE: 17 Ac.±
NUMBER OF LOTS: 61
TYPICAL LOT SIZE: 80'x100', 8,000 S.F.
LARGEST LOT SIZE: 11,776 S.F.
COMMON OPEN SPACE: 26,640 S.F.
PROPOSED DENSITY: 3.59 UNITS/ACRE
PROJECT LOCATED WITHIN A PORTION OF THE SW 1/4 OF THE SW 1/4 OF SECTION 3, T. 15 N., R. 20 E.
THERE ARE NO FAULT LINES WITHIN PROXIMITY OF THIS SITE
PROJECT LOCATED WITHIN FEMA ZONE "X"

ENGINEER'S STATEMENT

I, ANDREW M. MOTTER, 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, CITY ORDINANCES, AND CODES. IN THE EVENT OF CONFLICT BETWEEN ANY PORTION OF THESE PLANS AND CITY CODES, THE CITY CODES SHALL PREVAIL.

ANDREW M. MOTTER P.E. #13794

OWNER

CUBIX CORPORATION
2800 LOCKHEED WAY
CARSON CITY, NEVADA 89706

APPLICANT

MS. SANDI WEST
4606 E. MEADOW DRIVE
PHOENIX, ARIZONA 85032
(480) 977-9222
email: sandi.west1@gmail.com

ENGINEER

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ANDREW M. MOTTER, P.E.
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email: amotter@manhard.com

PLANNER

MANHARD CONSULTING LTD.
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CHRIS BAKER, LEED AP
(775) 321-6524
email: cbaker@manhard.com

BASIS OF BEARINGS

GRID NORTH, 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 CC031 AND CC0329. COMBINED GRID TO GROUND FACTOR = 1.0002. ALL DISTANCES SHOWN HEREIN ARE GROUND VALUES.

BASIS OF ELEVATION

NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), AS TAKEN FROM CARSON CITY CONTROL MUNUMENT CC032, HAVING A PUBLISHED ELEVATION OF 4680.11 U.S. FEET. CC032 IS DESCRIBED AS A 2 INCH BRASS DISK STAMPED "CC032 2010" LOCATED ON THE WEST SIDE OF AIRPORT ROAD IN THE BACK OF A SIDEWALK, APPROXIMATELY 225 FEET NORTH OF THE INTERSECTION OF AIRPORT ROAD AND EAST NYE LANE.

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 MASONARY 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	FLARED END SECTION
FF	FINISHED 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

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EAST NYE LANE TENTATIVE MAP
CARSON CITY, NEVADA
TITLE SHEET

PROFESSIONAL ENGINEER - STATE OF NEVADA
ANDREW W. MOTTER
Exp: 12-31-21
CIVIL
No. 13794
6/29/21

PROJ. MGR.:	AM
PROJ. ASSOC.:	
DRAWN BY:	MB
DATE:	06/29/21
SCALE:	AS NOTED

SHEET
T1 of 10
Nrsccnv.01

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June 29, 2021 - 09:49 Dwg Name: P:\Nrsccnv01\dwg\Eng\Final Drawings\Plan Set\Tentative Map\01-Title.dwg Updated By: mbray

0 30 60 120

SCALE: 1"=60'

LEGEND:

- COMMON OPEN SPACE (26,640 S.F., 0.61 Ac.)
- PRIVATE OPEN SPACE (297,180 S.F., 6.82 Ac.)
- BUILDING PAD
- PROPOSED A.C.
- PROPOSED CONCRETE

DATE	REVISIONS	DRAWN BY	CHECK BY

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EAST NYE LANE TENTATIVE MAP
CARSON CITY, NEVADA
DEVELOPED EXHIBIT

PROFESSIONAL ENGINEER STATE OF NEVADA
ANDREW W. MOTTER
Exp: 12-31-21
CIVIL
No. 13794
6/29/21

PROJ. MGR.:	AM
PROJ. ASSOC.:	
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DATE:	06/29/21
SCALE:	1"=60'

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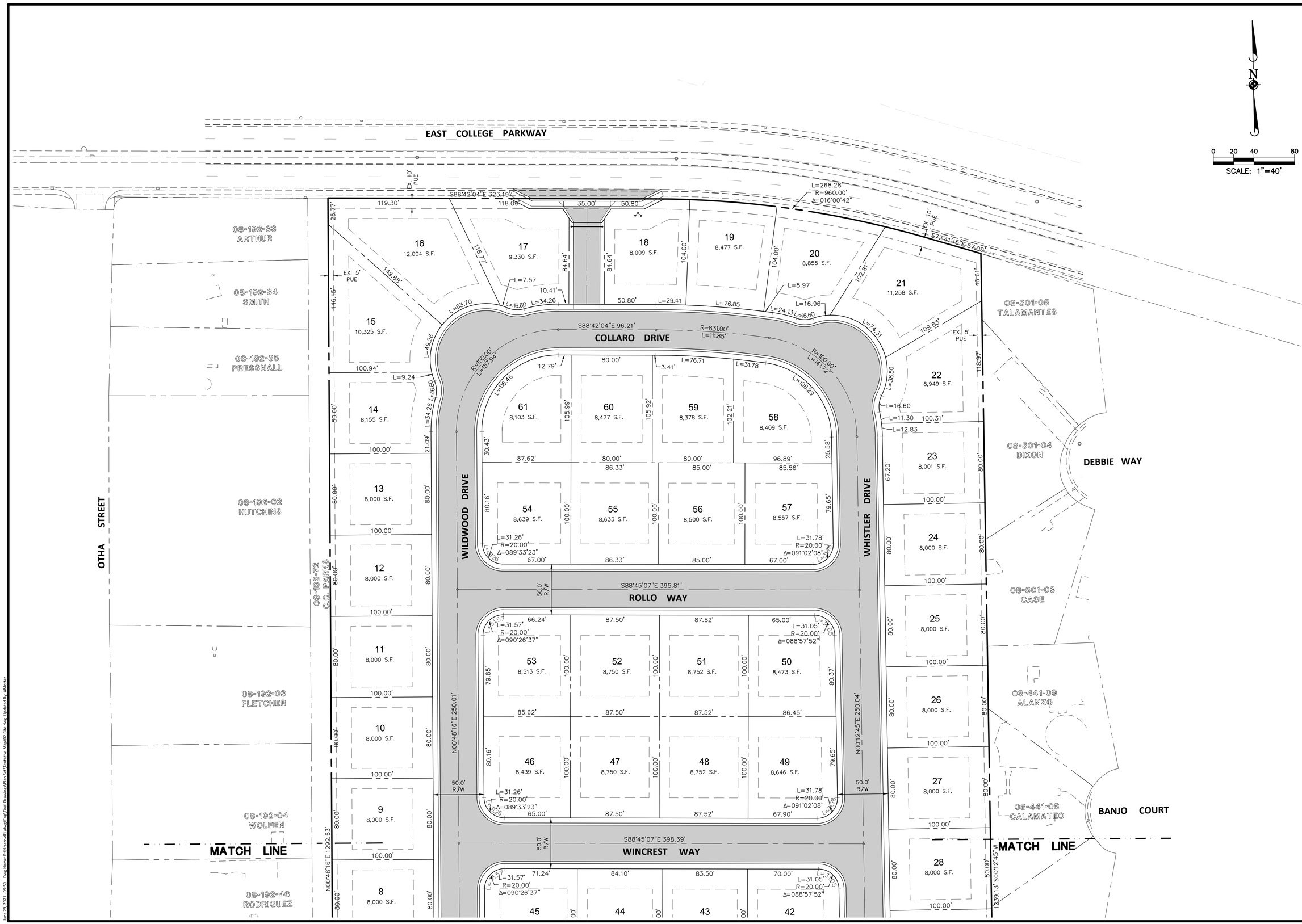

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EAST NYE LANE TENTATIVE MAP

CARSON CITY, NEVADA

SITE PLAN

ANDREW W. MOTTER
Exp: 12-31-21
CIVIL
No. 13794
STATE OF NEVADA
PROFESSIONAL ENGINEER
6/30/21

PROJ. MGR.:	AM
PROJ. ASSOC.:	
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DATE:	06/29/21
SCALE:	1"=40'

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S1 OF 10
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Jun 29, 2021 - 09:59 Dwg Name: P:\Nrsccnv01\Dwg\Eng\Final Drawings\Plan Set\Tentative Map\02-Site.dwg Updated By: AMotter

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EAST NYE LANE TENTATIVE MAP
CARSON CITY, NEVADA
SITE PLAN

ANDREW W. MOTTER
Exp: 12-31-21
CIVIL
No. 13794
STATE OF NEVADA
PROFESSIONAL ENGINEER
6/29/21

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PROJ. ASSOC.:	
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DATE:	06/29/21
SCALE:	1"=40'

SHEET S2 OF 10
Nrsccnv.01

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WALL NOTE:

SOME LOTS ON THE EAST AND WEST BORDERS MAY REQUIRE LANDSCPAE WALLS IN THE REAR OF THE LOT TO MATCH EXISTING GRADE

N

0 20 40 80

SCALE: 1"=40'

EAST COLLEGE PARKWAY

4690 4688 4687 4686 4685

688.23 FG(e)

7.72%

COLLARO DRIVE

GB 685.50 — 685.43 FG — 0.50% — GB 684.46

WILDWOOD DRIVE — 1.28%

WHISTLER DRIVE — 1.35%

ROLLO WAY — 0.50% — 1.06%

GB 681.50 — 681.14 GB — 682.04 GB — GB 680.50 — GB 680.14

WINCREST WAY — 0.50% — 1.05%

679.50 PI — 679.14 GB — 680.05 GB — GB 678.50 — GB 678.14

0.80% — 0.80%

OTHA STREET

16	PAD=4686.90
17	PAD=4687.40
18	PAD=4687.20
19	PAD=4686.80
20	PAD=4686.40
21	PAD=4685.80
22	PAD=4685.20
23	PAD=4684.60
24	PAD=4683.50
25	PAD=4682.50
26	PAD=4681.80
27	PAD=4681.20
28	PAD=4680.60
15	PAD=4686.30
14	PAD=4685.90
13	PAD=4685.10
12	PAD=4684.10
11	PAD=4683.20
10	PAD=4682.50
9	PAD=4681.80
8	PAD=4681.20
61	PAD=4687.20
60	PAD=4687.40
59	PAD=4687.00
58	PAD=4686.60
54	PAD=4683.60
55	PAD=4684.00
56	PAD=4684.00
57	PAD=4683.10
53	PAD=4683.60
52	PAD=4684.00
51	PAD=4684.00
50	PAD=4683.10
46	PAD=4681.60
47	PAD=4682.00
48	PAD=4682.00
49	PAD=4681.10
45	
44	
43	
42	

08-192-33 ARTHUR

08-192-34 SMITH

08-192-35 PRESSNALL

08-192-02 HUTCHINS

08-192-72 C.C. PARKS

08-192-03 FLETCHER

08-192-04 WOLFEN

08-192-41 RODRIGUEZ

08-501-25 TALAMANTES

08-501-04 DIXON

08-501-03 CASE

08-441-09 ALANZO

08-441-08 CALAMATEO

MATCH LINE

MATCH LINE

PROPERTY LINE

HP=101.20

1%

FG=101.70

GB=100.50

GB=99.80

VARIES

VARIES

1%

1%

TC=100.00

TC=99.40

TYPICAL LOT GRADING

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EAST NYE LANE TENTATIVE MAP

CARSON CITY, NEVADA

GRADING PLAN

PROFESSIONAL ENGINEER — STATE OF NEVADA — ANDREW W. MOTTER — Exp 12-31-21 — CIVIL — No. 13794 — 6/29/21

PROJ. MGR.:	AM
PROJ. ASSOC.:	
DRAWN BY:	MB
DATE:	06/29/21
SCALE:	1"=40'

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EAST NYE LANE TENTATIVE MAP
CARSON CITY, NEVADA
GRADING PLAN

PROFESSIONAL ENGINEER STATE OF NEVADA
ANDREW W. MOTTER
Exp: 12-31-21
CIVIL
No. 13794
6/29/21

PROJ. MGR.:	AM
PROJ. ASSOC.:	
DRAWN BY:	MB
DATE:	06/29/21
SCALE:	1"=40'

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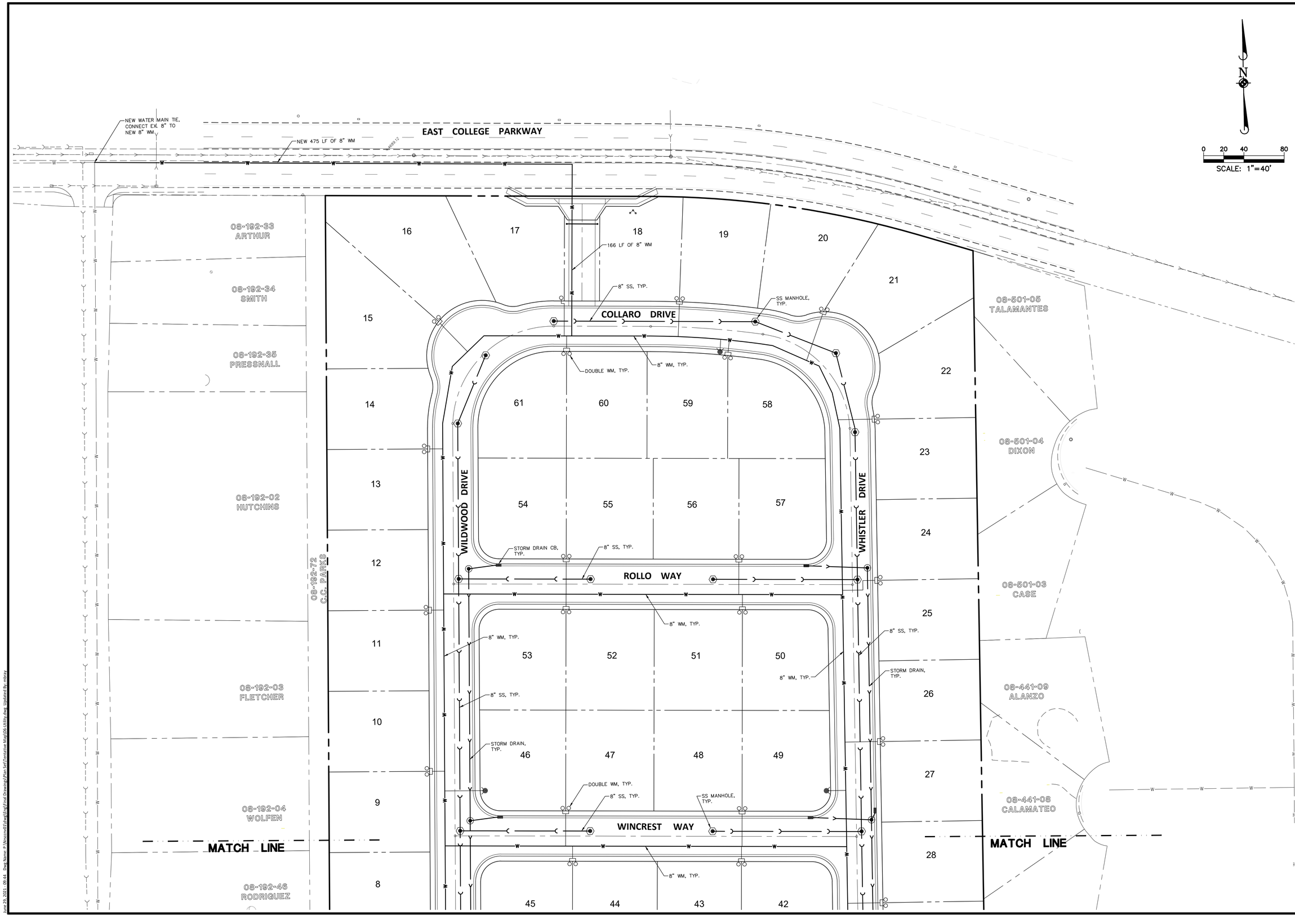

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DATE

EAST NYE LANE TENTATIVE MAP
CARSON CITY, NEVADA
UTILITY PLAN

PROFESSIONAL ENGINEER STATE OF NEVADA
ANDREW W. MOTTER
Exp 12-31-21
CIVIL
No. 13794
6/29/21

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PROJ. ASSOC.:	
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SCALE:	1"=40'

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08-192-04
WOLFEN

MATCH LINE

08-192-46
RODRIGUEZ

08-192-47
COOPER
TR.

08-192-48
BYRNE

08-192-06
LANE

08-192-72
C.C. PARKS

08-192-07
LANE

08-192-54
ORTEGA

46 47 48 49

DOUBLE WM, TYP.

8" SS, TYP.

SS MANHOLE, TYP.

WINCREST WAY

468'

8" WM, TYP.

9 8 7 6 5 4 3 2 1

45 44 43 42

38 39 40 41

STORM DRAIN, TYP.

STORM DRAIN CB, TYP.

8" SS, TYP.

STORM DRAIN, TYP.

METTA WAY

8" WM, TYP.

DOUBLE WM, TYP.

37 36 35 34

FH, TYP.

8" WM, TYP.

WILDWOOD DRIVE

8" SS, TYP.

OPEN SPACE

8" WM, TYP.

4675

STORM DRAIN CB, TYP.

FH, TYP.

WATER MAIN TIE, CONNECT NEW 8" TO EX. 6" STL WM

08-192-70
CLEMENTINE, TR.

NOT A PART

EAST NYE LANE

WHISTLER DRIVE

27 28 29 30 31 32 33

STORM DRAIN, TYP.

8" SS, TYP.

OPEN SPACE

WATER MAIN TIE, CONNECT NEW 8" TO EX. 6" STL WM

08-441-08
CALAMATEO

MATCH LINE

08-441-07
GILBERT

08-441-12
BATTERSHELL

08-192-59
GOTCHY,
TR.

08-192-74
GOTCHY,
TR.

08-192-73
GOTCHY,
TR.

N

0 20 40 80

SCALE: 1"=40'

DRAWN BY | CHECK BY

REVISIONS

DATE

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Civil Engineers | Surveyors | Water Resource Engineers | Water & Waste Water Engineers
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EAST NYE LANE TENTATIVE MAP

CARSON CITY, NEVADA

UTILITY PLAN

ANDREW W. MOTTER
Exp. 12-31-21
CIVIL
No. 13794
STATE OF NEVADA
PROFESSIONAL ENGINEER

6/29/21

PENDING AGENCY APPROVAL

PROJ. MGR.:	AM
PROJ. ASSOC.:	
DRAWN BY:	MB
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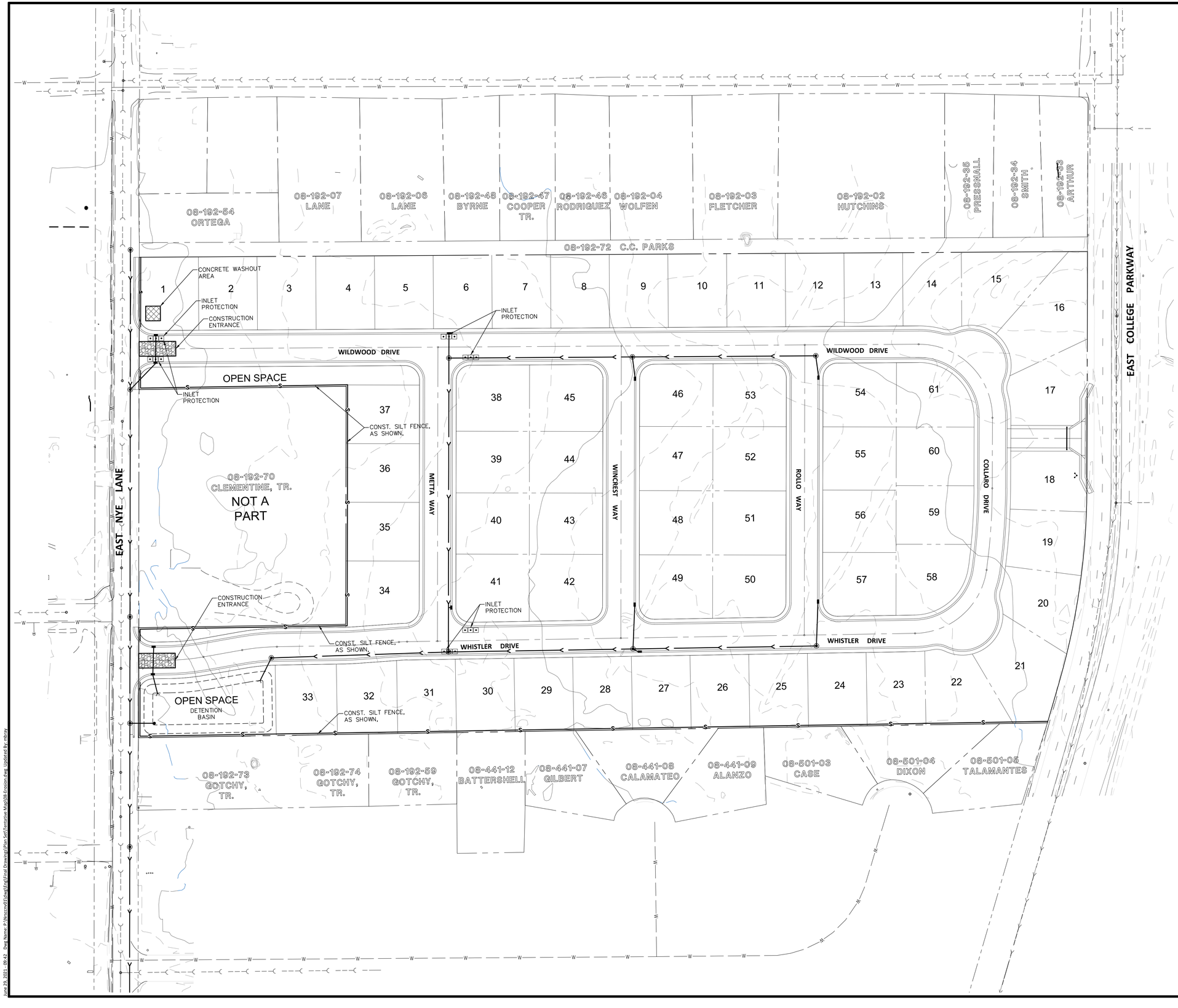

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EROSION CONTROL LEGEND

INLET PROTECTION LOCATIONS

GRAVEL BAGS AND/OR FIBER ROLLS SHALL BE USED FOR PROTECTION AT ALL LOCATIONS SPECIFIED ON THE PLANS. SILT SACKS SHALL BE USED IN CONJUNCTION WITH GRAVEL BAGS AT ALL STORM DRAIN INLETS IN PAVED AREAS. ALL PROTECTION MEASURES SHALL BE INSTALLED PER THE MANUFACTURER'S SPECIFICATIONS.

GRAVEL CONSTRUCTION ENTRANCE

GRAVEL CONSTRUCTION ENTRANCE SHALL BE INSTALLED PRIOR TO COMMENCEMENT OF GRADING AND SHALL CONSIST OF 2-4" NOMINAL SIZE GRAVEL PLACED OVER AN AREA NO SMALLER THAN 15' WIDE, 50' LONG, AND 12" DEEP. ENTRANCE SPECIFICATIONS SHALL BE MAINTAINED THROUGHOUT THE DURATION OF THE PROJECT. ENTRANCE SHALL BE REMOVED PRIOR TO PLACING BASE FOR PAVING.

CONCRETE WASHOUT AREA

S SILT FENCE

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REVISIONS

DATE

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EAST NYE LANE TENTATIVE MAP

CARSON CITY, NEVADA

EROSION CONTROL PLAN

PROFESSIONAL ENGINEER — STATE OF NEVADA
ANDREW W. MOTTER
Exp 12-31-21
CIVIL
No. 13794
6/29/21

PROJ. MGR.:	AM
PROJ. ASSOC.:	
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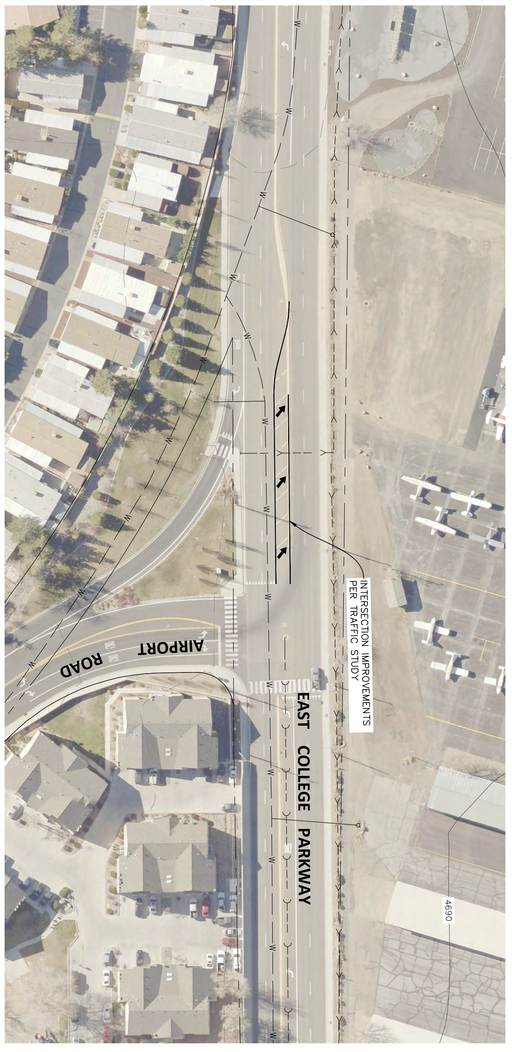

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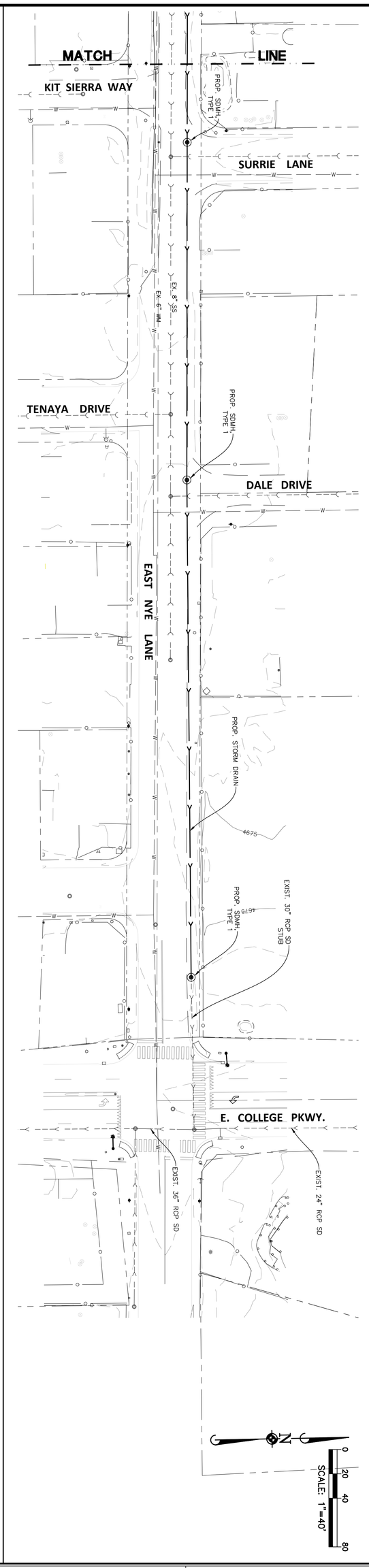

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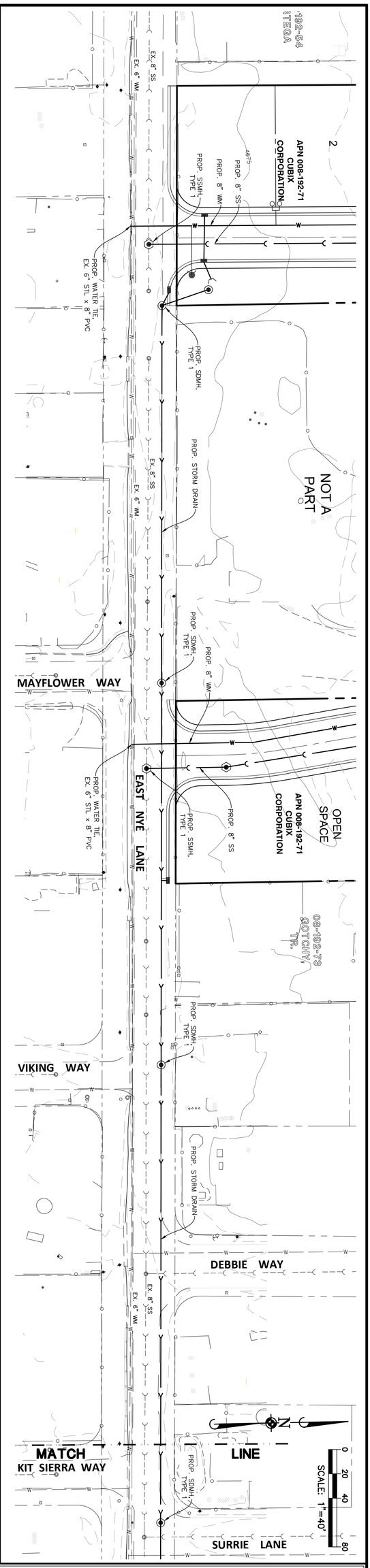

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PROJ. ASSOC.:	

STATE OF NEVADA — PROFESSIONAL ENGINEER — No. 13784 — ANDREW W. MOTTER — Exp. 12-31-21 — CIVIL

EAST NYE LANE TENTATIVE MAP

CARSON CITY, NEVADA

OFF SITE IMPROVEMENTS

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DATE	REVISIONS	DRAWN BY	CHECK BY

PENDING AGENCY APPROVAL

Carson City Property Inquiry 008-192-71 : 2020

Shopping Cart

Property Information

Parcel ID	008-192-71	**Parcel Acreage**	17.0030
Tax Year	2020	**Assessed Value**	682,500
Land Use Group	VAC	**Tax Rate**	3.5700
Land Use	120 - Vacant - Single Family Residential	**Total Tax Fiscal Year (2020 - 2021)**	$12,409.03
Zoning	MH12	**Total Unpaid All Years**	$0.00
Tax District	024		Pay Taxes
Site Address	E NYE LN		

Billing Fiscal Year (2020 - 2021)

Installment	Date Due	Date Paid	Tax Billed	Cost Billed	Penalty/Interest	Total Due	Amount Paid	Total Unpaid
1	8/17/2020	8/20/2020	$3,102.52	$0.00	$0.00	$3,102.52	$3,102.52	$0.00
2	10/5/2020	10/14/2020	$3,102.17	$0.00	$0.00	$3,102.17	$3,102.17	$0.00
3	1/4/2021	1/15/2021	$3,102.17	$0.00	$0.00	$3,102.17	$3,102.17	$0.00
4	3/1/2021	3/12/2021	$3,102.17	$0.00	$0.00	$3,102.17	$3,102.17	$0.00
Total			**$12,409.03**	**$0.00**	**$0.00**	**$12,409.03**	**$12,409.03**	**$0.00**

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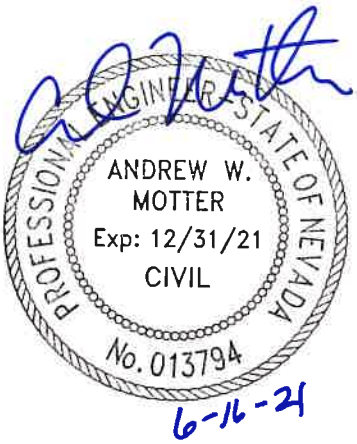
PRELIMINARY SEWER REPORT

FOR

EAST NYE LANE
TENTATIVE MAP

CARSON CITY, NEVADA



Prepared for:

Ms. Sandi West
4606 E. Meadow Drive
Phoenix, AZ 85032

Prepared by:

Manhard Consulting Ltd.
241 Ridge Street, Suite 400
Reno, Nevada 89501

Project: NRSCCNV01

Date: 6/15/21

Table of Contents

Figures

Appendices

1 INTRODUCTION

1.1 Purpose of Analysis

This report represents a detailed analysis of the proposed sanitary sewer system for the East Nye Lane project. The purpose of this analysis is to establish peak flow rates and evaluate proposed sanitary sewer sizes for the subject property.

1.2 Project Location and Description

The East Nye Lane development is approximately 17.00 acres in size and is located in the northeast area of Carson City near the intersection of East Nye Lane and Mayflower Way. This site is situated within the Southwest ¼ of Section 3 Township 15 North, and Range 20 East of the Mount Diablo Meridian (refer to Figure 1, Vicinity Map). The project site is within the existing parcel 008-192-71.

Figure 2, the *Proposed Sewer Display*, illustrates the location and orientation of the project and its proposed lots and roadway locations.

1.3 Project Description

The East Nye Lane project is a proposed subdivision which consists of 61 single-family residential units. The project site is currently zoned MH12 with a Master Plan designation of MDR.

2 PROPOSED ALIGNMENT AND QUANTITY OF SERVICE

2.1 Project Wastewater Collection System

Sewage flow from the East Nye Lane project will be conveyed via new public 8" diameter PVC SDR-35 sewer mains that ultimately discharge into the existing 8" sanitary sewer main located in East Nye Lane. The proposed sizes and locations of the sanitary sewers can be found on the *Proposed Sewer Display*, which is included in this report.

2.2 Estimated Peak Sewage Flows

Calculations for the design of the sewer system were performed in accordance with Chapter 10, Section 11.243 of the Recommended Standards for Wastewater Facilities, 2004 Edition and Division 15, Section 15.3.2 of the Carson City Development Standards and Carson City's Sewer Flow Monitoring Analysis (CCSFMA). According to CCSFMA, the actual per capita flow ranges from 125 – 150 gal/cap/day with a peaking factor ranging from 3.5 – 3.8. For this analysis, the flow factors used in the calculations are 2.5 capita per dwelling unit for a single-family residential lot and 150 gal/cap/day to calculate average daily flow. A peaking factor of 3.8 is then applied to the daily average flow to compute the peak flow used in the design of the sanitary sewer. Complete peak flow calculations for the East Nye Lane project are included within this report. This analysis is considered to be conservative based on the CCSMA results. The following table summarizes the results of the calculations of the peak daily flows for the residential subdivision:

Units	Capita/DU	GPD/ Capita	Peaking Factor	Peak Flow (gpd)	Peak Flow (cfs)
61	2.5	150	3.80	86,925	0.135
			Total	**86,925**	**0.135**

There will be no additional contributary flows to the on-site system, nor is there the ability to add additional flows in the future.

2.3 Proposed Sewer Mains

Basic normal depth calculations for the proposed 8-inch sewer mains were done using open-channel pipe flow theory, the Manning's Formula, and *Bentley FlowMaster® V8i®* (*FlowMaster*) software. A Manning's Coefficient of 0.013 (assuming PVC pipe material) was used in all of these calculations. The *FlowMaster* worksheets that demonstrate these calculations are included within this report (Appendix A).

Per Carson City Development Standards, sewer mains less than 15" diameter are considered at capacity when peak flow is at d/D=0.50 (Div. 15, Section 15.3.2.a.). In addition, the minimum velocity of 2 fps and the maximum velocity of 10 fps are required design conditions (Div. 15, Section 15.3.2.e.). The *FlowMaster* calculations included within this report demonstrate that the previously mentioned design criteria are met for this project. The minimum pipe slope within the development will be 0.0040 ft/ft which equates to a velocity of 2.19 fps at a d/D=0.50. The flow capacity of this pipe is 0.38 cfs or 246,966 gal/day.

3 CONCLUSION

The 8-inch sanitary sewer mains proposed within the development will adequately serve the project as planned. The attached *FlowMaster* worksheets calculate the maximum capacity of the proposed 8-inch sewer mains at a minimum slope of 0.40% in accordance with the requirements of Carson City. The 8-inch sewer mains at 0.40% have a sufficient capacity to serve the project and meet Carson City standards.

The proposed sanitary sewerage system within this report for the East Nye Lane development has adequate capacity to carry the subject property's peak sewage flow in conformance with the guidelines outlined in the Carson City Development Standards and the Recommended Standards for Wastewater Facilities.

SANITARY SEWER CALCULATIONS FOR SILVER VIEW TOWNHOMES

The following calculations were performed in accordance with Chapter 10, Section 11.243 of the Recommended Standards for Wastewater Facilities, 2004 ed. (Ten-States Standards), and the Carson City Development Standards:

2.5 capita/dwelling unit
150 gal/capita/day

The site will consist of 61 dwelling units; therefore, the following equations are used:

Average flow = num. of dwellings * capita/dwelling * GPCD

Average flow = 61 * 2.5 * 150 = 22,875 gpd = 0.035 cfs

Peak flow = Average flow * peaking factor

Peaking Factor = $(18 + P^{1/2}) / (4+P^{1/2})$ where P = population in thousands (i.e. dwelling units x 3.5 divided by 1,000). Maximum peaking factor is 4.0. However, according CCSFMA a peaking factor of 3.8 is acceptable.

Calculated peaking factor = 3.80

Peak flow = 22,875 * 3.8 = 86,925 gpd = 0.135 cfs

The design shall be for the peak flow; therefore, the design flow is 0.135 cfs.

VICINITY MAP

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EAST NYE LANE
CARSON CITY, NEVADA
FIGURE 1

PROJ. MGR.: AWM
DRAWN BY: AWM
DATE: 6/15/2021
SCALE: N.T.S.

SHEET 1 OF 1

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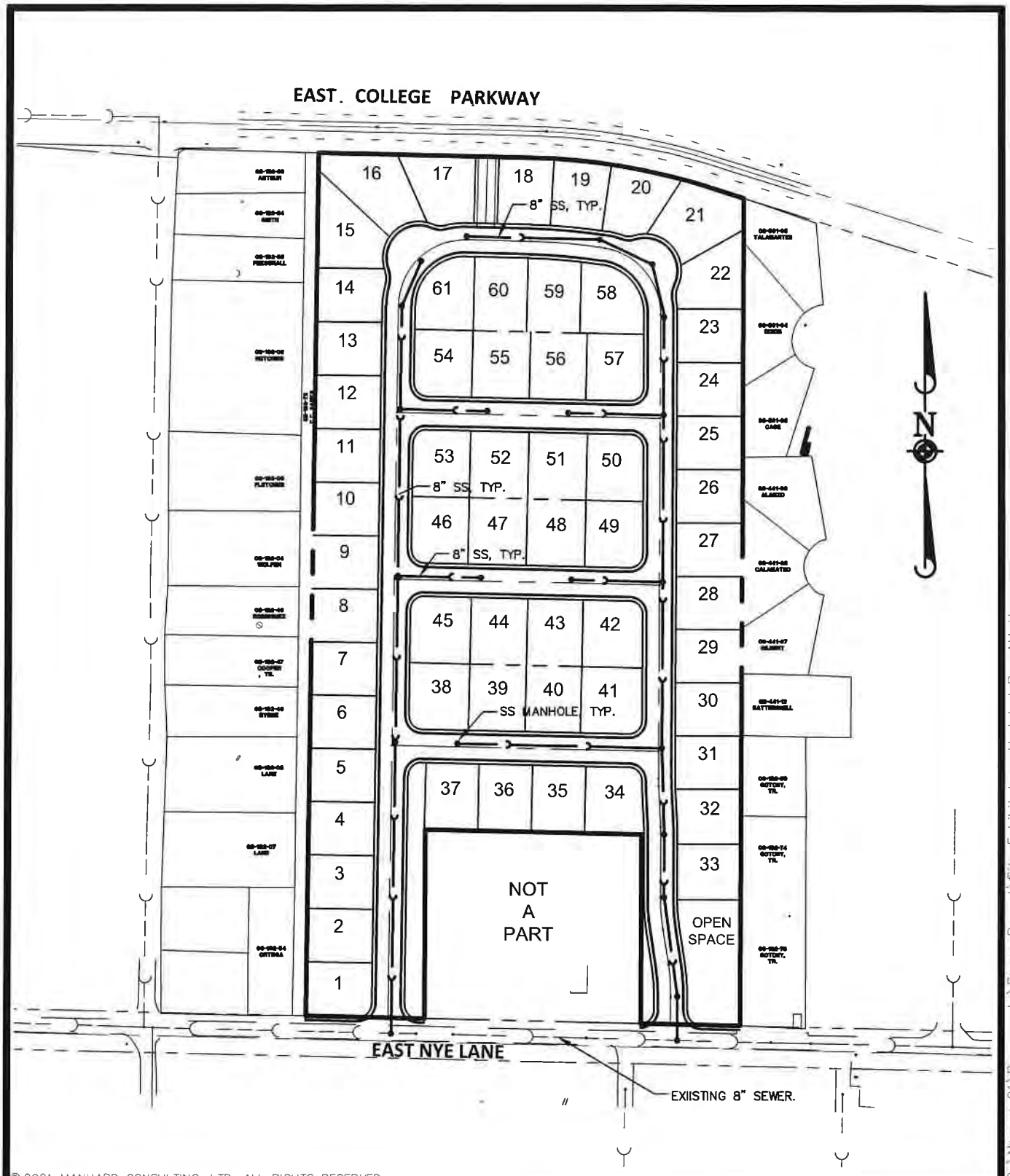

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EAST NYE LANE
CARSON CITY, NEVADA
FIGURE 2

PROJ. MGR.:	AWM
DRAWN BY:	AWM
DATE:	6/15/2021
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SHEET 1 OF 1

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APPENDIX A

FlowMaster Flow Data

Sewer Capacity

Project Description

Friction Method	Manning Formula
Solve For	Discharge

Input Data

Roughness Coefficient	0.013	
Channel Slope	0.00400	ft/ft
Normal Depth	4.00	in
Diameter	8.00	in

Results

Discharge	246965.98	gal/day
Flow Area	0.17	ft²
Wetted Perimeter	1.05	ft
Hydraulic Radius	2.00	in
Top Width	0.67	ft
Critical Depth	0.29	ft
Percent Full	50.0	%
Critical Slope	0.00670	ft/ft
Velocity	2.19	ft/s
Velocity Head	0.07	ft
Specific Energy	0.41	ft
Froude Number	0.75	
Maximum Discharge	0.82	ft³/s
Discharge Full	0.76	ft³/s
Slope Full	0.00100	ft/ft
Flow Type	SubCritical	

GVF Input Data

Downstream Depth	0.00	in
Length	0.00	ft
Number Of Steps	0	

GVF Output Data

Upstream Depth	0.00	in
Profile Description		
Profile Headloss	0.00	ft
Average End Depth Over Rise	0.00	%
Normal Depth Over Rise	50.00	%
Downstream Velocity	Infinity	ft/s

Sewer Capacity

GVF Output Data

Upstream Velocity	Infinity	ft/s
Normal Depth	4.00	in
Critical Depth	0.29	ft
Channel Slope	0.00400	ft/ft
Critical Slope	0.00670	ft/ft

Manhard CONSULTING LTD

PRELIMINARY DRAINAGE REPORT

FOR

East Nye Lane

CARSON CITY, NEVADA

Prepared for:

Cubix Corporation
2800 Lockheed Way
Carson City, NV 89706

Prepared by:

Manhard Consulting Ltd.
241 Ridge Street, Suite 400
Reno, NV 89501

Project: NRSCCNV01
June 15, 2021

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Appendices

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List of Tables

1 INTRODUCTION

1.1 Purpose of Analysis

This report presents the data, hydrologic and hydraulic analyses, and conclusions of a preliminary technical drainage study performed for East Nye Lane to support the proposed development in Carson City, Nevada. In addition, in the interest of brevity and clarity, this report will defer to figures, tables, and the data and calculations contained in the appendices, whenever possible.

1.2 Project Location and Description

The East Nye Lane development is approximately 17 acres in size and is located in the northern portion of Carson City just east of the intersection of Otha Street and E. Nye Lane. This site is situated within the Southwest ¼ of the Southwest ¼ of Section 3 Township 15 North, and Range 20 East of the Mount Diablo Meridian (refer to Figure 1, Vicinity Map). The project site is within the existing parcel APN 008-192-71.

1.3 Project Description

The E. Nye Lane development is a proposed subdivision which consists of 61 single-family residential units on a 17-acre parcel. The project site is currently zoned within the MH12 zoning district.

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) Community-Panel Number 3200010103E, effective date 1-16-09 and Number 3200010111H, effective date 6-20-19 the subject property is located in unshaded Zone X (Appendix A).

The purpose of this report is to analyze the existing and proposed conditions of the subject property based on the 5-year and 100-year peak flow events. The report contains the following sections: (1) Methodologies and Assumptions, (2) Existing Hydrology, (3) Proposed Hydrology, and (4) Conclusion.

2 METHODOLOGIES AND ASSUMPTIONS

2.1 Hydrologic Modeling Methods

Hydrologic analyses were performed to determine the peak discharge for the 5-year and 100-year peak flow events. The *Rational Method* analysis to model the hydrologic basins that contribute in the existing and proposed conditions.

Parameters for peak storm flow and runoff volume estimates presented herein were determined using the data and methodologies presented in the *Carson City Municipal Code, Division 14 – Storm Drainage* section. In instances where the Carson City Municipal Code, Division 14 (CCMC-14) was lacking information or specificity, the

Truckee Meadows Regional Drainage Design Manual (2009) and/or the other appropriate sources and software user manuals were referenced.

For the existing and proposed on-site hydrologic conditions, the Rational Method was utilized in accordance with the CCMC-14. A minimum time of concentration of 10-minutes was used for all sub-basins for a conservative analysis.

The rainfall characteristics were modeled using the NOAA database (http://dipper.nws.noaa.gov/hdsc/pfds/sa/nv_pfds.html) to determine site specific depth of precipitation (Appendix A).

Rational Formula: **Q=CiA**

Q=Peak Discharge (cfs)
C=Runoff Coefficient (dimensionless)
i=Precipitation Intensity (in/hr)
A=Watershed Area (Acres)

3 EXISTING HYDROLOGIC CONDITIONS

3.1 Existing On-Site Drainage

For the existing catchment a time of concentration (Tc) of 10 minutes and the Rational Method coefficients were selected, taking into consideration the catchment characteristics, which include catchment area and land cover. A 5-year intensity of 1.49 in/hr and 100-year intensity of 3.59 in/hr were used. Table 1 and Figure 2 summarize the characteristics of on-site catchment of the study area. Reference Figure 2 (Existing Hydrologic Conditions) for existing hydrology drainage map and the associated hydrologic sub-areas.

Table 1 – Existing Conditions Rational Method Model Summary for the E. Nye Lane, Carson City, Nevada.

Sub-Basin	Area (Ac.)	Rational Method Coefficient (C_5/C_{100})	Time of Concentration (min)	Rainfall Intensity (I_5/I_{100}) (in/hr)	5-Year Peak Flows (cfs)	100-Year Peak Flows (cfs)
EX1	17	0.2/0.5	10.00	1.49/3.59	5.1	30.5
TOTAL	**17**	-----	-----	-----	**5**	**31**

The 5-year and 100-year peak flows from on-site catchment in the existing condition are 5 cfs and 31 cfs, respectively. The existing flow from area EX1 discharge to E. Nye Lane and flows east in the shoulder of E. Nye Lane.

4 PROPOSED HYDROLOGIC CONDITIONS

4.1 Proposed On-Site Drainage

The sub-areas took into account the proposed on-site flows that affect the site. The associated calculated 5-year and 100-year peak flows can be found in Table 2 and Figure 3, the detention facility can be referenced in Table 3. Both pipe sizes and catch basins have been sized to accommodate the proposed flows. Reference Figure 3 for the associated hydrologic sub-areas and the proposed catch basins. A 5-year intensity of 1.49 in/hr and 100-year intensity of 3.59 in/hr were used. All drainage for the site will be contained in swales and the roadway and will travel to the storm drain inlets. From the inlets, the flow will be routed through the proposed storm drain system to the detention/retention basin(s).

Table 2 – Proposed Conditions Rational Method Model Summary for the E. Nye Lane Project, Carson City, Nevada.

Sub-Basin	Area (Ac.)	Rational Method Coefficient (C_5/C_{100})	Time of Concentration (min)	Rainfall Intensity (I_5/I_{100}) (in/hr)	5-Year Peak Flows (cfs)	100-Year Peak Flows (cfs)
P1	1.59	0.6/0.78	10.00	1.49/3.59	1.4	4.5
P2	1.52	0.6/0.78	10.00	1.49/3.59	1.4	4.3
P3	1.13	0.6/0.78	10.00	1.49/3.59	1.0	3.2
P4	1.11	0.6/0.78	10.00	1.49/3.59	1.0	3.1
P5	1.11	0.6/0.78	10.00	1.49/3.59	1.0	3.1
P6	2.88	0.6/0.78	10.00	1.49/3.59	2.6	8.1
P7	1.11	0.6/0.78	10.00	1.49/3.59	1.0	3.1
P8	1.11	0.6/0.78	10.00	1.49/3.59	1.0	3.1
P9	2.13	0.6/0.78	10.00	1.49/3.59	1.9	6.0
P10	1.13	0.6/0.78	10.00	1.49/3.59	1.0	3.2
P11	1.13	0.6/0.78	10.00	1.49/3.59	1.0	3.2
TOTAL	17	-----	-----	-----	**14**	**45**
P1-offsite	1.59				1.4	4.5
Retention	**15.4**				**12.6**	**40.5**

5 HYDRAULIC ANALYSIS

5.1 Proposed Drainage Conditions

All onsite storm drainage pipes and/or drainage features shall be designed to intercept the 100-year storm flows and convey them to the proposed detention/retention facility. All proposed storm drainage facilities shall be privately owned and maintained.

Each of the proposed developed sub-basins are will collect the developed storm flows in the following manner;

Area P1 – This area will flow to the storm drain line in E. Nye Lane.

Area P2 thru P11 – These areas are collected into a storm drainage system and conveyed to the retention pond in Area P2.

Area P2 thru P11 utilizes an overland flow and storm drain to convey flows to the on-site retention facility. The on-site retention facility collects all the flows from the drain system and does not allow them to exit the site. The retention pond has an infiltration rate of 1.48 inches per minute at a 3' depth and 3.38 inches per minute at a 6' depth. These values are based on field percolation tests conducted by RCI.

5.2 Retention/Detention

According to the existing and proposed hydrologic analysis, the existing average 5-year and 100-year condition flows are 5 cfs and 31 cfs, respectively, and the proposed 5-year and 100-year condition flows are 12.6 cfs and 40.5 cfs. This is a 5-year increase of 7.6 cfs and a 100-year increase of 9.5 cfs. Given that there is not any existing public storm drain adjacent to the site, it is proposed that the majority of the 5 and 100- year runoff volumes be retained onsite and the small remainder flow of area P1 be allowed to discharge to the public streets. The 5-year retention volume is 3,326 cubic feet and the 100-year retention volume is 8,185 cubic feet.

The pond volume shown in the tentative map has approximately 17,542 cf of storage at 2 foot depth with an additional 1 foot of freeboard. This volume alone is enough to retain the 100-year storm event.

The geotechnical engineer indicates an infiltration rate for the area of the retention basin. The retention pond has an infiltration rate of 1.48 inches per minute (7.4'/hour) at a 3' depth and 3.38 inches per minute (16.9'/hour) at a 6' depth. These values are based on field percolation tests conducted by RCI. At these rates, the proposed pond with a bottom of 740 sq-ft would have an approximate infiltration rate of 2.50 cfs

When you take the infiltration rate into consideration, the 5-year and the 100-year event is being infiltrated while it is entering the pond and the required storage volume is reduced to approximately 120 cubic feet for the 5-year storm and 1,632 cubic feet for the 100-year events. This volume will take approximately an additional 11 minutes to infiltrate and empty the pond after the 100-year storm event is over.

Street capacity has been calculated to be approximately 6.6 cfs for the street section with a slope of 0.5 %, which is adjacent to the retention basin.

6 CONCLUSION

6.1 Regulations and Master Plans

The proposed improvements and the analyses presented herein are in accordance with drainage regulations presented in *Carson City Municipal Code, Division 14 – Storm Drainage* section. In instances where the Carson City Municipal Code, Division 14 (CCMC-14) was lacking information or specificity, the *Truckee Meadows Regional*

Drainage Design Manual (2009) and/or the other appropriate sources and software user manuals were referenced.

6.2 Impacts to Adjacent Properties

The performance of the proposed project improvements, roadways, detention/retention, and storm water conveyance facilities, once constructed, will not adversely impact upstream or downstream properties adjacent to this site. The development of this site for the uses proposed will decrease downstream storm flow runoff rates, volumes, velocities, depths, and will not influence floodplain boundaries.

With the utilization of the on-site retention/detention pond, the volume of water being released will be kept at the existing condition release rates. This will have a positive impact to downstream properties by providing extra capacity in the storm water conveyance systems. Additionally, it provides for groundwater recharge in the valley.

6.3 Standards of Practice

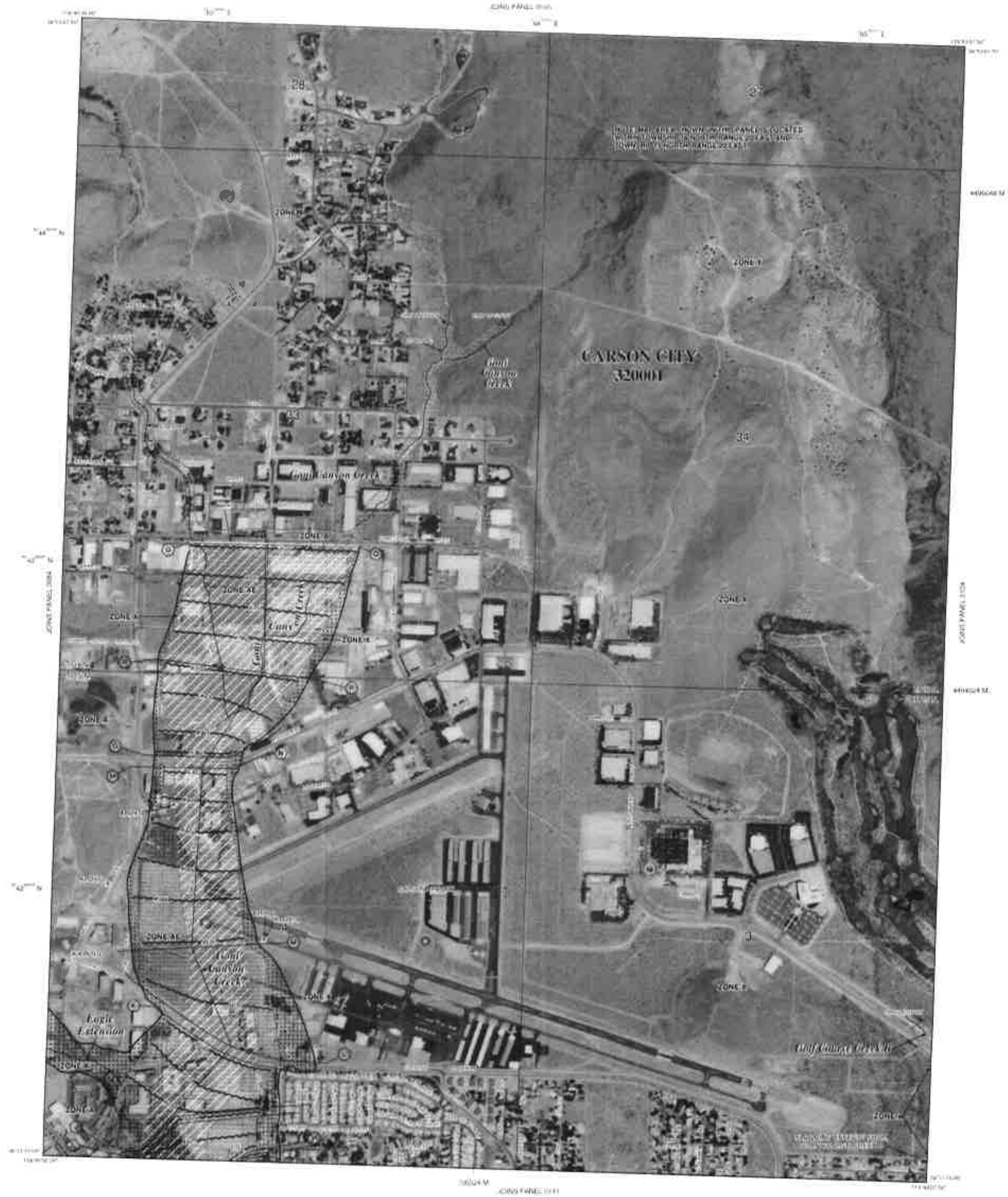
This study was prepared using the degree of care and skill ordinarily exercised, under similar circumstances, by reputable professional engineers practicing in this and similar localities.


Vicinity Map
E. Nye Lane Project
Figure 1
Project Site
Arrowhead Dr
E College Pkwy
New Empire
531
580
50
E William St
Lincoln Hwy
© 2021 Google
Google Earth
1 mi
N


EAST COLLEGE PARKWAY
SCALE: 1"=100'
0 50 100 200
N
OTHA STREET
EX 8" WM
16 17 18 19 20 21
15 22
14 61 60 59 58 P9
P11 P10 23
13 54 55 56 57 24
12 25
11 53 52 51 50 26
P7 P8
10 P6 46 47 48 49 27
9 28
8 45 44 43 42 29
7 P5 P4 P2
38 39 40 41 30
6 31
5 37 36 P3 35 34 32
4
P1 NOT A PART 33
3
2 RETENTION BASIN
1
E. NYE LANE
DATE REVISIONS BY
Manhard CONSULTING
241 Ridge Street Suite 400 Reno NV 89501 ph 775 746 3500 fx 775 746 3520 manhard.com
Civil Engineers | Surveyors | Water Resource Engineers | Water & Waste Water Engineers
Construction Managers | Environmental Scientists | Landscape Architects | Planners
EAST NYE LANE
CARSON CITY, NEVADA
DRAINAGE SUBBASINS - FIGURE 3
DRAWN BY: MB
RELEASE DATE: 06/2021
SCALE: AS NOTED
CODE: Nrsccnv01

APPENDIX A
SUPPORTING DATA

NOTES TO USERS



LEGEND

SPECIAL FLOOD HAZARD AREAS (SFHAs) SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

OTHER AREAS

COASTAL BARRIER RESOURCES SYSTEM (CBRS) AREAS

OTHERWISE PROTECTED AREAS (OPAs)

MAP SCALE 1" = 500'

PANEL 0103E

FIRM
FLOOD INSURANCE RATE MAP

CARSON CITY, NEVADA
INDEPENDENT CITY

PANEL 103 OF 275

CONTAINS:

NATIONAL FLOOD INSURANCE PROGRAM

MAP NUMBER
32000101O3E

MAP REVISED
JANU

475

Federal Emergency Manage

FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR ZONE DESCRIPTIONS AND INDEX MAP

THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT HTTP://MSC.FEMA.GOV

SPECIAL FLOOD HAZARD AREAS		Without Base Flood Elevation (BFE) Zone A, V, A99 With BFE or Depth Zone AE, AO, AH, VE, AR
		Regulatory Floodway
OTHER AREAS OF FLOOD HAZARD		0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
		Future Conditions 1% Annual Chance Flood Hazard Zone X
		Area with Reduced Flood Risk due to Levee See Notes. Zone X
OTHER AREAS	NO SCREEN	Areas Determined to be Outside the 0.2% Annual Chance Floodplain Zone X
		Area of Undetermined Flood Hazard Zone D
GENERAL STRUCTURES		Channel, Culvert, or Storm Sewer
		Levee, Dike, or Floodwall
	E 18.2 17.5	Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)

NOTES TO USERS

SCALE

Map Projection:

1 inch = 500 feet 1:6,000

0 500 1 000 2 000 Feet

0 125 250 500 Meters

PANEL LOCATOR

FEMA

National Flood Insurance Program

NATIONAL FLOOD INSURANCE PROGRAM

FLOOD INSURANCE RATE MAP

CARSON CITY, NEVADA

Independent City

PANEL 111 OF 275

COMMUNITY	NUMBER	PANEL	SUFFIX

NOAA Atlas 14, Volume 1, Version 5
Location name: Carson City, Nevada, USA*
Latitude: 39.1949°, Longitude: -119.7325°
Elevation: 4710.37 ft**
* source: ESRI Maps
** source: USGS

POINT PRECIPITATION FREQUENCY ESTIMATES

Sanja Perica, Sarah Dietz, Sarah Heim, Lillian Hiner, Kazungu Maitaria, Deborah Martin, Sandra Pavlovic, Ishani Roy, Carl Trypaluk, Dale Unruh, Fenglin Yan, Michael Yekta, Tan Zhao, Geoffrey Bonnin, Daniel Brewer, Li-Chuan Chen, Tye Parzybok, John Yarchoan

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour)[1]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	1.18 (1.02-1.39)	1.46 (1.27-1.74)	1.96 (1.68-2.33)	2.44 (2.06-2.88)	3.19 (2.63-3.79)	3.89 (3.11-4.64)	4.73 (3.65-5.70)	5.72 (4.24-7.02)	7.31 (5.10-9.16)	8.74 (5.81-11.1)
10-min	0.900 (0.774-1.06)	1.12 (0.972-1.33)	1.49 (1.28-1.77)	1.85 (1.57-2.18)	2.43 (2.00-2.88)	2.96 (2.36-3.53)	3.59 (2.77-4.33)	4.35 (3.22-5.34)	5.56 (3.88-6.97)	6.65 (4.42-8.48)
15-min	0.744 (0.640-0.876)	0.924 (0.800-1.09)	1.23 (1.06-1.46)	1.53 (1.30-1.80)	2.01 (1.66-2.38)	2.45 (1.95-2.92)	2.97 (2.29-3.58)	3.60 (2.66-4.41)	4.59 (3.21-5.76)	5.50 (3.66-7.01)
30-min	0.498 (0.430-0.590)	0.622 (0.538-0.736)	0.830 (0.710-0.984)	1.03 (0.874-1.22)	1.35 (1.11-1.60)	1.65 (1.32-1.97)	2.00 (1.54-2.41)	2.42 (1.79-2.97)	3.09 (2.16-3.88)	3.70 (2.46-4.72)
60-min	0.309 (0.266-0.365)	0.384 (0.333-0.456)	0.513 (0.440-0.609)	0.636 (0.540-0.752)	0.836 (0.690-0.992)	1.02 (0.814-1.22)	1.24 (0.955-1.49)	1.50 (1.11-1.84)	1.91 (1.34-2.40)	2.29 (1.52-2.92)
2-hr	0.207 (0.184-0.238)	0.257 (0.228-0.294)	0.328 (0.289-0.374)	0.390 (0.340-0.446)	0.484 (0.412-0.556)	0.568 (0.472-0.660)	0.663 (0.536-0.778)	0.779 (0.609-0.928)	0.978 (0.730-1.21)	1.16 (0.838-1.48)
3-hr	0.165 (0.148-0.186)	0.206 (0.185-0.232)	0.258 (0.230-0.291)	0.301 (0.266-0.339)	0.361 (0.314-0.410)	0.414 (0.353-0.473)	0.472 (0.395-0.545)	0.546 (0.447-0.641)	0.668 (0.530-0.815)	0.785 (0.607-0.993)
6-hr	0.115 (0.103-0.128)	0.143 (0.129-0.161)	0.178 (0.159-0.199)	0.205 (0.182-0.230)	0.242 (0.212-0.273)	0.271 (0.235-0.308)	0.301 (0.256-0.345)	0.335 (0.279-0.389)	0.385 (0.312-0.454)	0.429 (0.340-0.515)
12-hr	0.075 (0.067-0.084)	0.094 (0.084-0.106)	0.119 (0.105-0.134)	0.138 (0.122-0.155)	0.164 (0.143-0.185)	0.184 (0.158-0.209)	0.204 (0.173-0.235)	0.225 (0.187-0.262)	0.253 (0.205-0.301)	0.275 (0.218-0.332)
24-hr	0.049 (0.044-0.054)	0.061 (0.055-0.068)	0.077 (0.070-0.085)	0.090 (0.081-0.099)	0.108 (0.097-0.119)	0.122 (0.109-0.135)	0.137 (0.121-0.152)	0.152 (0.133-0.170)	0.173 (0.149-0.195)	0.190 (0.162-0.216)
2-day	0.029 (0.026-0.033)	0.036 (0.033-0.041)	0.046 (0.042-0.052)	0.054 (0.049-0.061)	0.065 (0.058-0.074)	0.074 (0.065-0.084)	0.084 (0.073-0.095)	0.093 (0.081-0.107)	0.107 (0.091-0.124)	0.118 (0.099-0.138)
3-day	0.021 (0.019-0.024)	0.027 (0.024-0.030)	0.034 (0.031-0.039)	0.040 (0.036-0.045)	0.049 (0.043-0.055)	0.056 (0.049-0.063)	0.063 (0.055-0.072)	0.071 (0.061-0.081)	0.081 (0.069-0.094)	0.090 (0.075-0.105)
4-day	0.017 (0.015-0.020)	0.022 (0.019-0.025)	0.028 (0.025-0.032)	0.033 (0.029-0.038)	0.040 (0.036-0.046)	0.046 (0.040-0.053)	0.053 (0.045-0.060)	0.059 (0.050-0.068)	0.068 (0.057-0.079)	0.076 (0.063-0.089)
7-day	0.012 (0.010-0.013)	0.015 (0.013-0.016)	0.019 (0.017-0.021)	0.022 (0.020-0.025)	0.027 (0.024-0.031)	0.031 (0.027-0.035)	0.035 (0.030-0.040)	0.039 (0.034-0.045)	0.045 (0.038-0.052)	0.050 (0.041-0.058)
10-day	0.009 (0.008-0.010)	0.011 (0.010-0.013)	0.015 (0.013-0.017)	0.017 (0.015-0.020)	0.021 (0.018-0.024)	0.024 (0.021-0.027)	0.027 (0.023-0.030)	0.030 (0.026-0.034)	0.034 (0.029-0.039)	0.037 (0.031-0.043)
20-day	0.005 (0.005-0.006)	0.007 (0.006-0.008)	0.009 (0.008-0.010)	0.011 (0.009-0.012)	0.013 (0.011-0.014)	0.014 (0.012-0.016)	0.016 (0.014-0.018)	0.017 (0.015-0.020)	0.019 (0.017-0.022)	0.021 (0.018-0.024)
30-day	0.004 (0.004-0.005)	0.005 (0.005-0.006)	0.007 (0.006-0.008)	0.008 (0.007-0.009)	0.010 (0.008-0.011)	0.011 (0.009-0.012)	0.012 (0.010-0.013)	0.013 (0.011-0.015)	0.015 (0.013-0.017)	0.016 (0.013-0.018)
45-day	0.003 (0.003-0.004)	0.004 (0.004-0.005)	0.005 (0.005-0.006)	0.006 (0.006-0.007)	0.007 (0.007-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.010 (0.009-0.011)	0.011 (0.009-0.012)	0.011 (0.010-0.013)
60-day	0.003 (0.003-0.003)	0.004 (0.003-0.004)	0.005 (0.004-0.005)	0.005 (0.005-0.006)	0.006 (0.006-0.007)	0.007 (0.006-0.008)	0.008 (0.007-0.008)	0.008 (0.007-0.009)	0.009 (0.008-0.010)	0.009 (0.008-0.010)

[1] Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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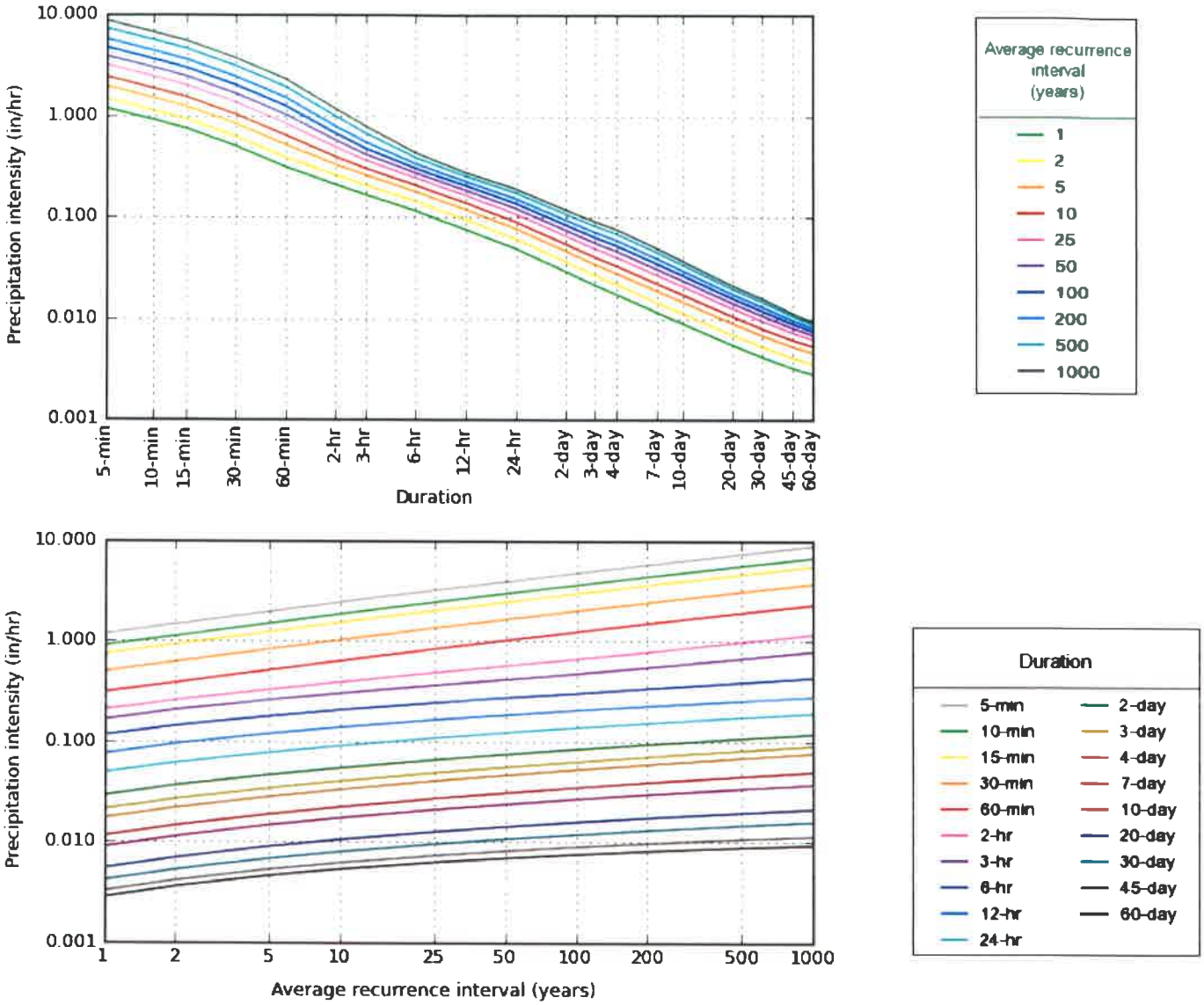
PF graphical

PDS-based intensity-duration-frequency (IDF) curves
Latitude: 39.1949°, Longitude: -119.7325°



NOAA Atlas 14, Volume 1, Version 5

Created (GMT): Wed Sep 30 15:29:26 2020

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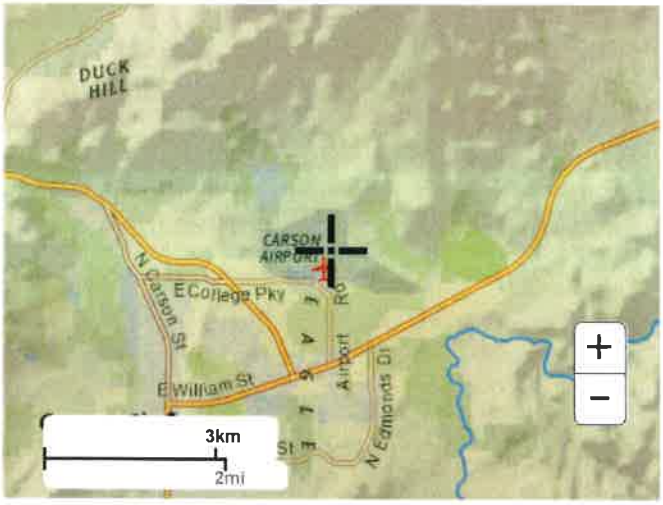
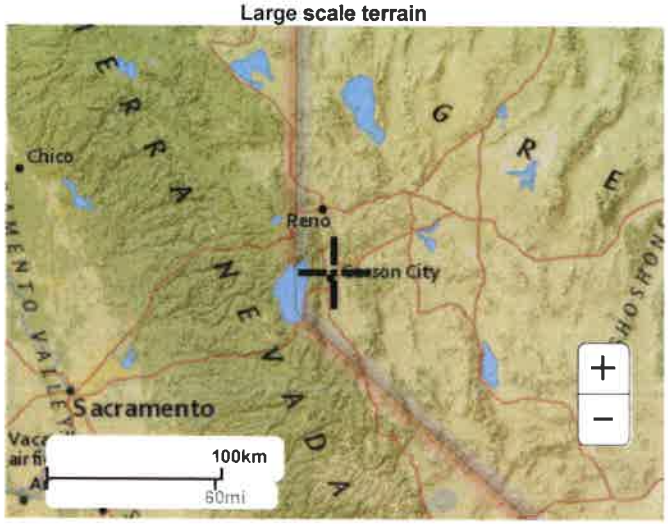
Maps & aerials

Small scale terrain



Large scale terrain



Large scale map

Large scale aerial

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US Department of Commerce
National Oceanic and Atmospheric Administration
National Weather Service
National Water Center
1325 East West Highway
Silver Spring, MD 20910
Questions?: HDSC.Questions@noaa.gov

Disclaimer

Worksheet for Gutter - 1

Project Description

Solve For	Discharge

Input Data

Channel Slope	0.00500	ft/ft
Gutter Width	1.50	ft
Gutter Cross Slope	0.08	ft/ft
Road Cross Slope	0.02	ft/ft
Spread	15.00	ft
Roughness Coefficient	0.013	

Results

Discharge	6.57	ft^3/s
Flow Area	2.32	ft^2
Depth	0.39	ft
Gutter Depression	0.09	ft
Velocity	2.83	ft/s

TABLE 1
Preliminary Modified Rational Method for Stormwater Management

Basin Description: Proposed Pond 1 - E. Nye Lane

Calc by: RRW
Date: 6/16/21

Existing Conditions

C_5 =	0.4		
T_c =	10.0 min.		
I_5 =	1.49 in/hr		
I_{10} =	1.85 in/hr		
I_{100} =	3.59 in/hr		
A =	17 acres		

Allowable Release Rates:

Q_5 =	10.13 cfs
Q_{10} =	12.58 cfs
Q_{100} =	24.41 cfs

Proposed Runoff Coefficient Calculations

Trib. Area (acre):	15.40	0.7	10.78	Cr = Total / A = 0.70
Totals (acre)	15.40		10.78	

5-Year

Storm Duration (hours)	Rain Intensity (in/hr)	Runoff Rate (cfs)	Release Rate (cfs)	Storage Rate (cfs)	Storage Required (acre-ft)
t	I	Q=Cr*I*A	Qr	Qs=Q-Qr	Qs*t/12
0.08	1.900	20.48	10.13	10.35	0.0718
0.17	1.450	15.63	10.13	5.50	0.0763
0.25	1.190	12.83	10.13	2.70	0.0562
0.50	0.802	8.65	10.13	-1.49	-0.0619
1.00	0.497	5.36	10.13	-4.77	-0.3979

5-Yr Required Storage: 0.076 acre-ft = 3326 cu ft

10-Year

Storm Duration (hours)	Rain Intensity (in/hr)	Runoff Rate (cfs)	Release Rate (cfs)	Storage Rate (cfs)	Storage Required (acre-ft)
t	I	Q=Cr*I*A	Qr	Qs=Q-Qr	Qs*t/12
0.08	2.350	25.33	12.58	12.75	0.0885
0.17	1.790	19.30	12.58	6.72	0.0932
0.25	1.480	15.95	12.58	3.37	0.0703
0.50	0.996	10.74	12.58	-1.84	-0.0768
1.00	0.617	6.65	12.58	-5.93	-0.4941

10-Yr Required Storage: 0.093 acre-ft = 4062 cu ft

100-Year

Storm Duration (hours)	Rain Intensity (in/hr)	Runoff Rate (cfs)	Release Rate (cfs)	Storage Rate (cfs)	Storage Required (acre-ft)
t	I	Q=Cr*I*A	Qr	Qs=Q-Qr	Qs*t/12
0.08	4.620	49.80	24.41	25.39	0.1763
0.17	3.520	37.95	24.41	13.53	0.1879
0.25	2.900	31.26	24.41	6.85	0.1427
0.50	1.950	21.02	24.41	-3.39	-0.1413
1.00	1.210	13.04	24.41	-11.37	-0.9474

100-Yr Required Storage: 0.188 acre-ft = 8185 cu ft

RATIONAL FORMULA METHOD
RUNOFF COEFFICIENTS

Land Use or Surface Characteristics	Aver. % Impervious Area	Runoff Coefficients 5-Year (C_5)	Runoff Coefficients 100-Year (C_{100})
Business/Commercial:			
Downtown Areas	85	.82	.85
Neighborhood Areas	70	.65	.80
Residential:			
(Average Lot Size)			
⅛ Acre or Less (Multi-Unit)	65	.60	.78
¼ Acre	38	.50	.65
⅓ Acre	30	.45	.60
½ Acre	25	.40	.55
1 Acre	20	.35	.50
Industrial:	72	.68	.82
Open Space:			
(Lawns, Parks, Golf Courses)	5	.05	.30
Undeveloped Areas:			
Range	0	.20	.50
Forest	0	.05	.30
Streets/Roads:			
Paved	100	.88	.93
Gravel	20	.25	.50
Drives/Walks:	95	.87	.90
Roof:	90	.85	.87

Notes:

1. Composite runoff coefficients shown for Residential, Industrial, and Business/Commercial Areas assume irrigated grass landscaping for all pervious areas. For development with landscaping other than irrigated grass, the designer must develop project specific composite runoff coefficients from the surface characteristics presented in this table.

VERSION: April 30, 2009	REFERENCE	TABLE
WRC ENGINEERING INC	USDCM, DROCOG, 1969 (with modifications)	701

Manhard CONSULTING

Civil Engineering
Surveying
Water Resources Management
Water & Wastewater Engineering
Construction Management
Environmental Sciences
Landscape Architecture
Land Planning

PRELIMINARY WATER SYSTEM ANALYSIS FOR EAST NYE LANE

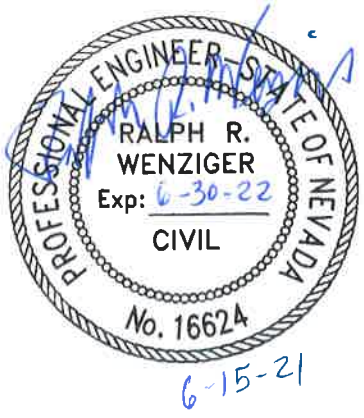
Carson City, Nevada

Prepared for:

Cubix Corporation
2800 Lockheed Way
Carson City, NV 89706

Prepared by:

Manhard Consulting, Ltd.
241 Ridge St, Suite 400
Reno, NV 89501



Job No. NRS.CCNV01

June 10, 2021

TABLE OF CONTENTS

LIST OF FIGURES

ABBREVIATIONS

Ø	diameter
AAD	Average Annual Demand
ADD	Average Daily Demand
D	nominal pipe diameter
E	East
EDU	Equivalent Dwelling Unit
(f)	Future
fps	feet per second
GIS	Geographical Information System
gpd	gallons per day
gpm	gallons per minute
HDPE	High Density Polyethylene
LCUD	Lyon County Utility Department
MDD	Maximum Daily Demands
MG	Million Gallons
min.	minimum
N	North
NAC 445A	Nevada Administrative Code 445A.65505 to .6731 Water Controls Design, Construction, Operation and Maintenance
NV	Nevada
PF	Peaking Factor
PHD	Peak Hourly Demand
psi	Pounds per square inch
PVC	Polyvinyl Chloride
vel.	Velocity
WFMP	Water Facility Master Plan

1 INTRODUCTION

This preliminary water system analysis is prepared at the request of Cubix Corporation to determine if the current Carson City water system can support the proposed construction of 61 residential lots included in East Nye Lane Tentative Map.

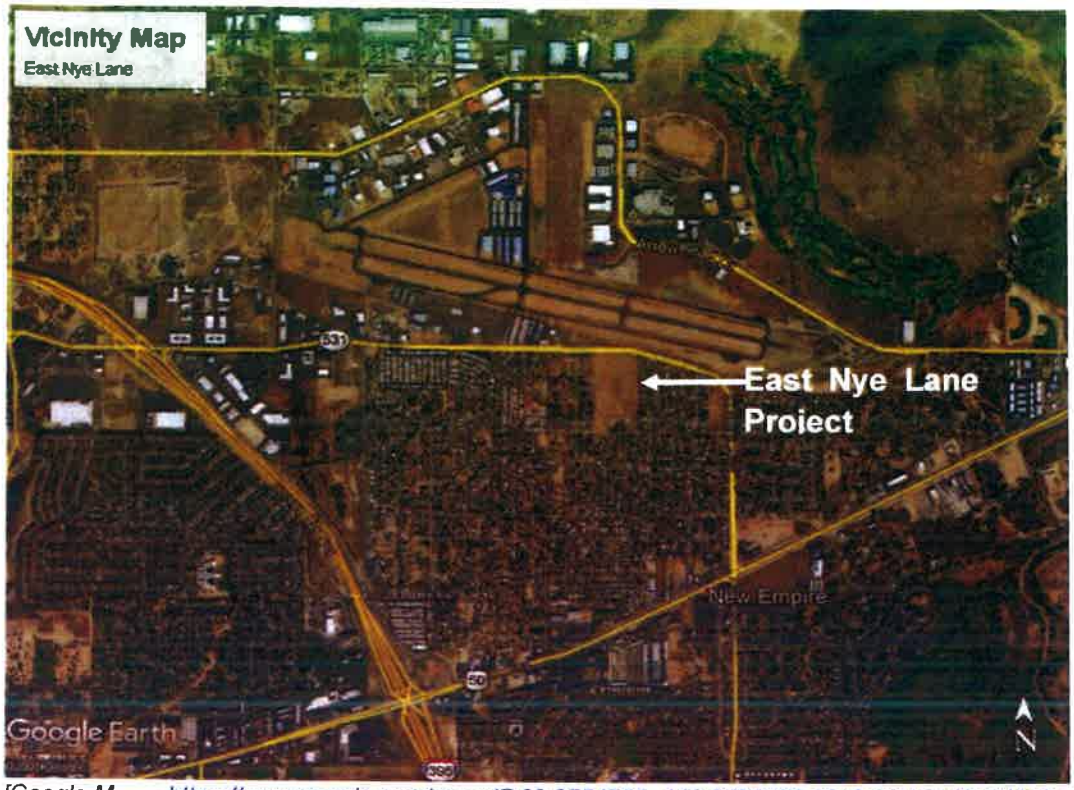
The report describes the water system and the criteria used for design. The purpose of this analysis is to establish the adequacy of the proposed water main pipe diameters and layout to meet the needs of the development.

1.1 PROJECT LOCATION AND SITE DESCRIPTION

East Nye Lane consists of 61 single-family residential houses, located on East Nye Lane adjacent to East College Parkway, just east of Airport Road in Carson City, Nevada. The site consists of APN 008-192-71 and is situated in a portion of the southwest ¼ of the southwest ¼ of Section 3, Township 15 North, Range 20 East of the Mount Diablo Meridian. Figure 1 shows the location and vicinity of East Nye Lane.

The East Nye Lane project is a proposed subdivision which consists of 61 single family residential units on a 17 acre parcel. The project is currently zoned MH12.

Figure 1: East Nye Lane Location Map



[Google Maps: https://www.google.com/maps/@39.2754755,-119.5796728,6643m/data=!3m1!1e3: accessed 11/27/2017]

2 EXISTING SYSTEM

The existing water system immediately surrounding the project consists of the following, refenece Figure 1:

- 6-inch waterline in East Nye Lane.
- 8-inch waterline in East College Pkwy and Otha Street.

3 PROPOSED WATER SYSTEM IMPROVEMENTS

3.1 PROPOSED WATER MAIN SYSTEM

The project water mains and distribution system are show on sheet U1 of the Tentative Map and the water infrastructure consists of the following, reference Figure 1:

- 8-inch waterline within the project.
- New 8" water line ties at both project street entrances at the south end of the project on East Nye Lane will tie into the existing 6" water main.
- The north end of the project will use an 8" water line tie from the project at East College Pkwy with a connection point at the intersection of Otha Street and East College Pkwy.

4 WATER SYSTEM ANALYSIS

The average per lot demand (1.0 gpm/unit) used in the analysis of the water main system.and NAC 445A.66735. A maximum day demand factor of 2.0 was applied to the average day demand to obtain the maximum day demand. The peak hour demand was calculated by applying a 1.5 demand multiplier to the maximum day demands. In a separate analysis, a 1500 gpm fire flow requirement was applied to the farthest hydrant in the system from the connection points. This 1500 gpm fire flow requirement was obtained from Section B105 and Table B105.1 of the 2012 International Fire Code. As a conservative analysis, it was assumed that all of the irrigation zones were active at the same time.

The following table provides the high and low pressures that were calculated using static water pressures based on the Carson City 4880 pressure zone:

Table 1: E. Nye Lane Project Pressure Summary

Condition	High Pressure (psi)	Low Pressure (psi)
Max Day	84	80
Peak Hour	84	80
Fire Flow (farthest hydrant)	69	66

A hydrant test will be required after the project is complete to determine the actual fire flow and residual pressures provided to the site fire hydrants.

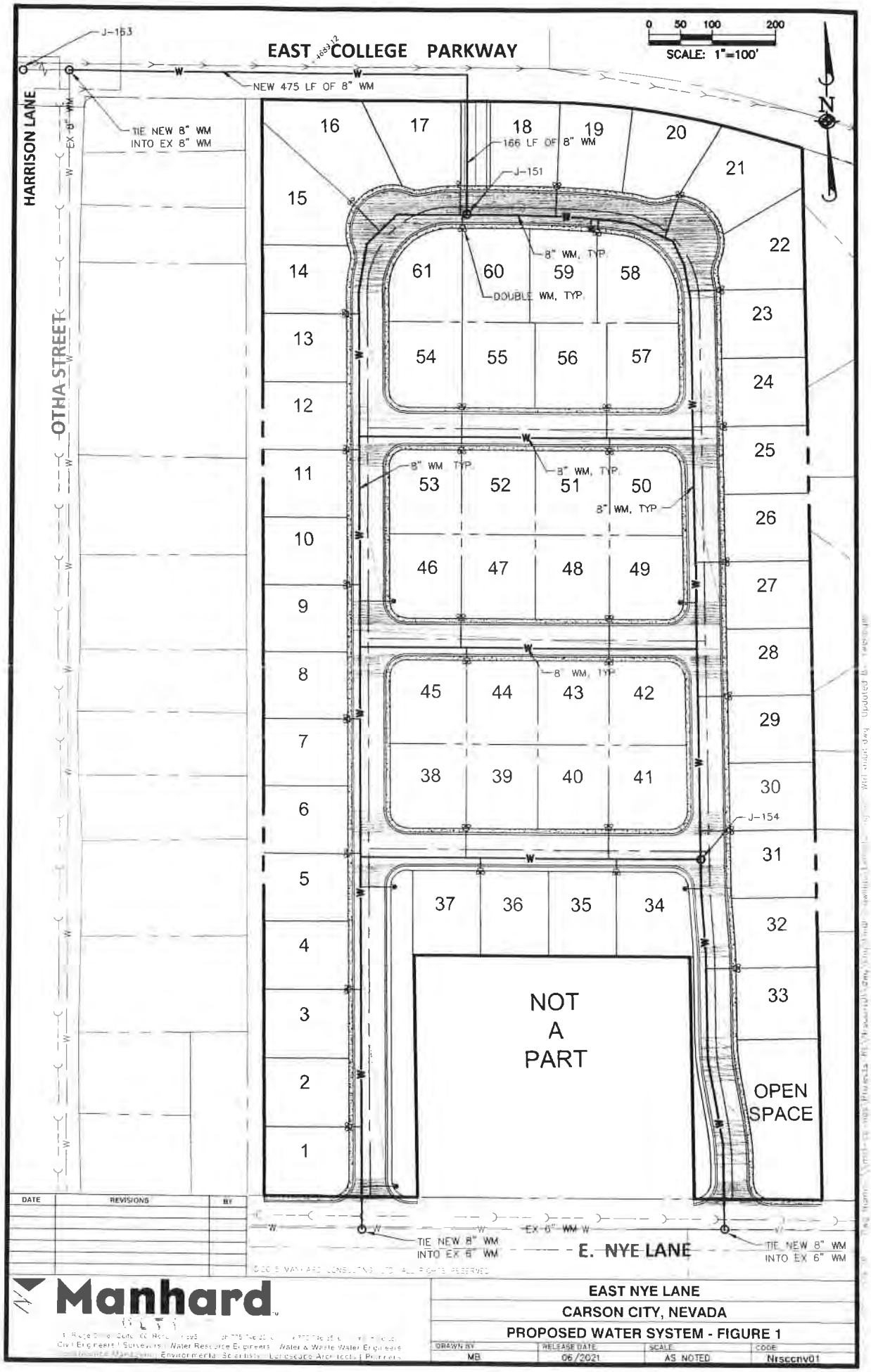
The maximum day demand low pressure of 80 psi is above the NAC minimum of 40 psi. The peak hour demand low pressure is above the minimum listed in the *Carson City Development Standards*.

To analyze the proposed water system for fire flow condition one fire flow test hydrant was used at Harrison Lane and E. College Pkwy. The WaterGEMS modeling software was used to simulate the water system flow for the project area. The water model was calibrated using the existing fire hydrant flow at Harrison Lane and College Pkwy. Then the water system was calculated for a fire flow of 1,500 gpm at node J-151 at the north end of the project and at node J-154 at the south end of the project. The fire flow results at both of these locations have been provided in the appendix and show that the fire hydrants are capable of providing 1500 gpm at 66 psi which is above the NAC requirement of 20 psi during fire flow conditions.

5 CONCLUSION

The analysis of the water system shows that the pipe sizes and piping layouts within the East Nye Lane project are adequately designed to meet the demands of the development. The analysis shows that the pressures are greater than the minimum requirement and below the maximum requirement for Carson City and the NAC requirements. The East Nye Lane project is in compliance and meets the minimum pressures per NAC 445A.6711 during maximum day, peak hour, and fire flow conditions.

Figure 1: Proposed Water System


EAST COLLEGE PARKWAY
SCALE: 1"=100'
0 50 100 200
N
HARRISON LANE
OTHA STREET
J-153
NEW 475 LF OF 8" WM
TIE NEW 8" WM INTO EX 8" WM
166 LF OF 8" WM
J-151
8" WM, TYP.
DOUBLE WM, TYP.
J-154
NOT A PART
OPEN SPACE
TIE NEW 8" WM INTO EX 6" WM
EX 6" WM
E. NYE LANE
TIE NEW 8" WM INTO EX 6" WM
DATE
REVISIONS
BY
Manhard
Civil Engineers | Surveyors | Water Resource Engineers | Water & Waste Water Engineers
Environmental Scientists | Landscape Architects | Planners
EAST NYE LANE
CARSON CITY, NEVADA
PROPOSED WATER SYSTEM - FIGURE 1
DRAWN BY: MB
RELEASE DATE: 06/2021
SCALE: AS NOTED
CODE: Nrsccnv01

Appendix A: WaterGEMS model system results

FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Notes
J-145	4,691.00	50.0	79	
J-146	4,677.00	50.0	85	
J-148	4,679.00	20.0	84	
J-149	4,682.00	20.0	83	
J-150	4,681.00	20.0	83	
J-151	4,688.00	20.0	80	FH at north end of project
J-152	4,681.00	20.0	83	
J-153	4,682.00	20.0	83	
J-154	4,679.00	20.0	84	FH at south end of project
J-155	4,674.00	1,000.0	89	
J-156	4,700.00	500.0	75	
J-157	4,673.00	200.0	87	
J-159	4,775.00	500.0	43	
J-161	4,678.00	10.0	85	
J-162	4,678.00	10.0	85	
J-163	4,691.98	20.0	79	FH atHanson and College
J-164	4,676.44	20.0	85	

FlexTable: Pipe Table

Label	Length (Scaled) (ft)	Diameter (in)	Material	Hazen-Williams C	Flow (gpm)	Velocity (ft/s)
P-196	812	8.0	PVC	150.0	3.4	0.02
P-201	897	16.0	Ductile Iron	130.0	-498.9	0.80
P-202	1,975	24.0	Ductile Iron	130.0	-739.8	0.52
P-203	288	24.0	Ductile Iron	130.0	1,239.8	0.88
P-204	1,477	24.0	Ductile Iron	130.0	-1,260.2	0.89
P-205	313	8.0	PVC	150.0	-34.7	0.22
P-206	212	8.0	PVC	150.0	-59.8	0.38
P-207	232	8.0	PVC	150.0	-91.5	0.58
P-197(2)	822	6.0	Ductile Iron	130.0	-260.2	2.95
P-197(1)(1)	448	6.0	Ductile Iron	130.0	-40.6	0.46
P-197(1)(2)	160	6.0	Ductile Iron	130.0	-67.3	0.76
P-209	107	8.0	PVC	150.0	-182.9	1.17
P-210	153	8.0	PVC	150.0	71.4	0.46
P-211	110	8.0	PVC	150.0	-16.8	0.11
P-212	191	8.0	PVC	150.0	-44.9	0.29
P-213	207	8.0	PVC	150.0	-59.8	0.38
P-214	238	8.0	PVC	150.0	-68.2	0.44
P-215	154	8.0	PVC	150.0	-11.6	0.07
P-216	166	8.0	PVC	150.0	-5.1	0.03
P-217	520	8.0	PVC	150.0	59.6	0.38
P-198(1)	170	8.0	Ductile Iron	130.0	6.2	0.04
P-198(2)	1,394	12.0	Ductile Iron	130.0	1.1	0.00
P-199(1)	164	6.0	Ductile Iron	130.0	-6.0	0.07
P-199(2)	1,016	6.0	Ductile Iron	130.0	-40.9	0.46
P-218	812	8.0	PVC	150.0	-14.8	0.09

FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Notes
J-145	4,691.00	50.0	66	
J-146	4,677.00	50.0	72	
J-148	4,679.00	20.0	69	
J-149	4,682.00	20.0	68	
J-150	4,681.00	20.0	69	
J-151	4,688.00	20.0	66	FH at north end of project
J-152	4,681.00	20.0	69	
J-153	4,682.00	20.0	68	
J-154	4,679.00	1,500.0	69	FH at south end of project
J-155	4,674.00	1,000.0	88	
J-156	4,700.00	500.0	68	
J-157	4,673.00	200.0	82	
J-159	4,775.00	500.0	39	
J-161	4,678.00	10.0	70	
J-162	4,678.00	10.0	70	
J-163	4,691.98	20.0	68	FH atHanson and College
J-164	4,676.44	20.0	74	

FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Notes
J-145	4,691.00	50.0	65	
J-146	4,677.00	50.0	71	
J-148	4,679.00	20.0	70	
J-149	4,682.00	20.0	68	
J-150	4,681.00	20.0	68	
J-151	4,688.00	1,500.0	65	FH at north end of project
J-152	4,681.00	20.0	68	
J-153	4,682.00	20.0	68	
J-154	4,679.00	20.0	70	
J-155	4,674.00	1,000.0	88	
J-156	4,700.00	500.0	68	
J-157	4,673.00	200.0	82	
J-159	4,775.00	500.0	39	
J-161	4,678.00	10.0	70	
J-162	4,678.00	10.0	70	
J-163	4,691.98	20.0	67	FH atHanson and College
J-164	4,676.44	20.0	74	

FlexTable: Junction Table

Label	Elevation (ft)	Demand (gpm)	Pressure (psi)	Notes
J-145	4,691.00	50.0	67	
J-146	4,677.00	50.0	73	
J-148	4,679.00	20.0	73	
J-149	4,682.00	20.0	71	
J-150	4,681.00	20.0	72	
J-151	4,688.00	20.0	69	
J-152	4,681.00	20.0	72	
J-153	4,682.00	20.0	71	
J-154	4,679.00	20.0	73	
J-155	4,674.00	1,000.0	88	
J-156	4,700.00	500.0	67	
J-157	4,673.00	200.0	81	
J-159	4,775.00	500.0	38	
J-161	4,678.00	10.0	73	
J-162	4,678.00	10.0	73	
J-163	4,691.98	1,500.0	66	FH at Hanson and College
J-164	4,676.44	20.0	73	

Fire Flow Test Data Sheet

Location of Test (Street and Cross Street): College Parkway and Harrison Lane

Address Nearest Residual Hydrant: 3501 Harrison Ln

Test Date: 2/17/2021 Test Time: 1045

Testing Personnel: MT, KA, JR

Pressure Zone: 4880 Main Size: 8"

Comments:

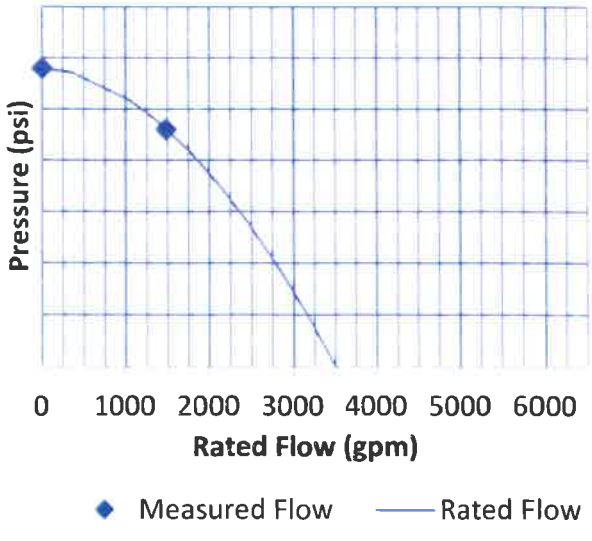
Test Results:

Residual Hydrant	
Static:	78 psi
Residual:	66 psi
Pressure Drop:	12 psi
	15 %

Flow Hydrant(s)	Testing Apparatus	Pitot Pressure (psi)	Discharge Diameter (in)	Outlet Coeff. (c)	Pitot Flow (gpm)
Flow 1	HM1	21	2	1.307	715
Flow 2	HM2	24	2	1.307	764
Flow 3					
				Total	1479

Area Map

Rated Flow



Rated Pressure (for Rated Capacity Calculation) 20 psi

Rated Capacity at 20 psi residual pressure. 3,500 gpm

Based on NFPA 291 - 2019 Edition and APWA Manual 17 - Fourth Edition

Pursuant to NFPA 291, fire flow test data over five years old should not be used.

Hydrant OBJECTID: 1436

Data Sheet File Name: College-Harrison.pdf

TRAFFIC IMPACT STUDY

for

East Nye Lane Subdivision

June 3, 2021

PREPARED FOR:

Manhard Consulting & Sandi West

PREPARED BY:

HEADWAY TRANSPORTATION

Headway Transportation, LLC
5482 Longley Lane, Suite B, Reno, Nevada 89511
775.322.4300
www.HeadwayTransportation.com

YOUR QUESTIONS ANSWERED QUICKLY

Why did you perform this study?

This Traffic Impact Study evaluates the potential traffic impacts associated with development of the proposed subdivision on East Nye Lane in Carson City, NV. This study was undertaken to determine the existing and future traffic conditions, quantify traffic volumes generated by the proposed project, identify potential impacts, and develop recommendations to mitigate impacts, if any are found.

What does the project consist of?

The project consists of approximately 61 modular homes. The site is located on the north side of East Nye Lane between Airport Road and College Parkway. Access is proposed via two points on East Nye Lane, with emergency only access on College Parkway.

How much traffic will the project generate?

The proposed project is anticipated to generate approximately 576 Daily trips, 45 AM peak hour trips, and 60 PM peak hour trips.

Are there any traffic impacts?

All studied intersections operate essentially the same with or without the project traffic. The addition of project traffic (60 peak hour trips) has no significant impact on traffic operations.

Are any improvements recommended?

The project should construct half street improvements and sidewalk along the property frontage of East Nye Lane.

At the College Parkway/ Airport Road intersection, consideration should be given to converting the striped median on the west leg of College Parkway to a northbound left turn receiving lane.

LIST OF FIGURES

LIST OF APPENDICES

INTRODUCTION

This Traffic Impact Study evaluates the potential traffic impacts associated with development of the proposed East Nye Lane subdivision in Carson City, NV. This study was undertaken to determine the existing and future traffic conditions, quantify traffic volumes generated by the proposed project, identify potential impacts, and develop recommendations to mitigate impacts, if any are found.

Study Area and Evaluated Scenarios

The project consists of approximately 61 modular homes. The site is located on the north side of East Nye Lane between Airport Road and College Parkway. Access is proposed via two points on East Nye Lane, with emergency only access on College Parkway.

The project location and the study intersections are shown in **Figure 1,** and a preliminary site plan is provided in **Figure 2**.

The following intersections are included in this study based on scoping correspondence with City staff:

- College Parkway/ Airport Road
- Airport Road/ East Nye Lane
- College Parkway/ East Nye Lane
- Two project access points on East Nye Lane

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

- Existing Conditions (no project)
- Existing Plus Project (build-out of the proposed project)
- Future Conditions (20-year horizon without the project)
- Future Plus Project Conditions (20-year horizon with project build-out)

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) 6th Edition*, published by the Transportation Research Board (TRB). 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, Chapters 18 through 21

Level of service calculations were performed using the Synchro 11 software package with results reported in accordance with the current HCM methodology.

Level of Service Policies

The Carson City Code of Ordinances, Section 12.13, establishes Level of Service (LOS) "D" as the citywide level of service standard. Carson City Municipal Code states that "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." Therefore, LOS D or better is deemed an acceptable operating condition. Hence, LOS "D" was used as the threshold criteria for this analysis. Where intersections are already experiencing LOS beyond the thresholds, conditions should not be exacerbated.

The LOS policy is not specific regarding side street stop conditions or minor movements. It is understood that minor movements and side-street approaches on major/high volume roadways will commonly operate at LOS E or F during peak hours. This is a commonly accepted and manageable condition because it is not appropriate to construct signals, roundabouts, or all-way stop controls at every minor street intersecting major roadways.

EXISTING CONDITIONS

Roadway Facilities

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

East Nye Lane is two lanes with an east-west orientation. East Nye Lane is classified as a Minor Collector and has a 25-mph posted speed limit. Near the project site, the roadway has poor pavement conditions, is not striped, and lacks paved shoulders, bicycle lanes and sidewalks. The intersection with Airport Road is stop controlled, with Airport Road uncontrolled. Marked pedestrian crosswalks exist on the north and south legs crossing Airport Road. East Nye Lane is stop controlled at the intersection with College Parkway, with College Parkway uncontrolled. Marked pedestrian crosswalks exist on the north, west and east legs. East Nye Lane has a short segment of sidewalk on the south side near College Parkway.

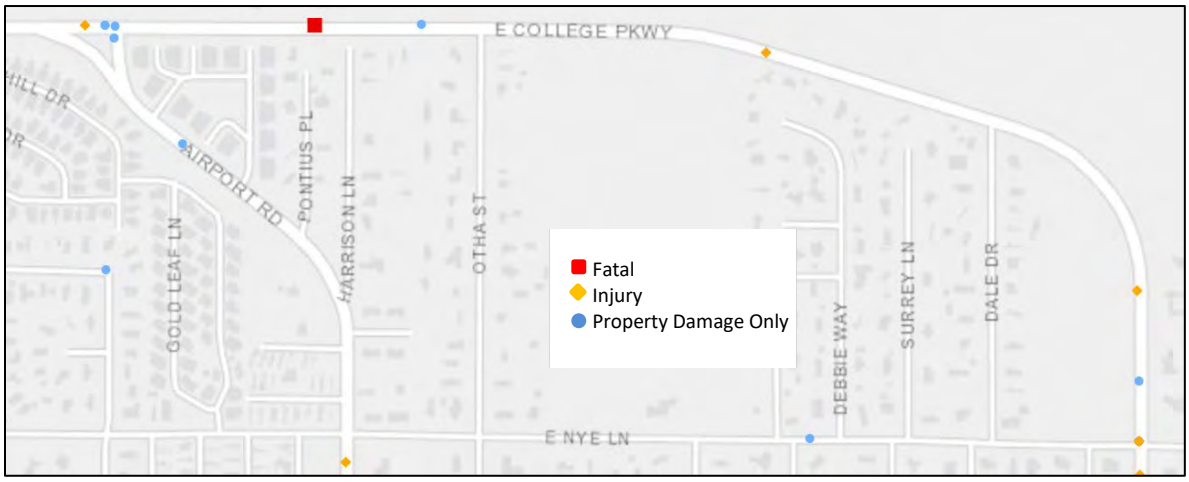
College Parkway is curved and has both a north-south and east-west orientation in the vicinity of the site. College Parkway is classified as a Minor Arterial and has a 40-mph posted speed limit. Fronting the site, the roadway is four lanes with a median and has sidewalks on both sides. Near the intersection with East Nye Lane, College Parkway is five lanes including a center turn lane.

Airport Road is two lanes with a north-south orientation. Airport Road is classified as a Minor Collector and has a 35-mph posted speed limit. The intersection with College Parkway is stop controlled, with College Parkway uncontrolled. Marked pedestrian crosswalks exist on the south and east legs.

Crash History

Crash data for the study area was obtained from NDOT for the previous 5 years. NDOT provides an online database of traffic crash data from 2015 to 2017. **Exhibit 1** shows the 2015 to 2017 crash history near the project site. Note that some dots overlap at intersections.

Exhibit 1: Crash Data



Source: ndot.maps.arcgis.com

One fatal crash occurred on College Parkway east of Airport Road involving a single vehicle running off the road and colliding with a fixed object. Approximately 20 crashes occurred in the overall study area; the majority were Property Damage Only (PDO).

NDOT also provided more recent crash data (2018-2019) that is not available on the online database. The 2018-2019 data included:

- One PDO crash on East Nye Lane at Dale Drive
- Five PDO and one injury crash at College Parkway/ Airport Road

The crash data does not indicate any significant safety issues.

Traffic Volumes

Peak period turning movement traffic counts, including bicycles and pedestrians, were collected on April 14-15, 2021 from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM, the typical commuter period/ peak volume periods. The peak hours were found to be 7:15-8:15 AM and 4:15-5:15 PM.

It is noted that the data was collected when some COVID-19 restrictions remained. Some surrounding schools and businesses could have been operating in a limited/virtual capacity which may impact traffic volumes. To account for this, the counts were compared to hourly volume data from the Nevada Department of Transportation's (NDOT) Traffic Records Information Access (TRINA) station 0250052 on East Nye Lane near the intersection with Airport Road and 0250118 on College Parkway near the intersection with East Nye Lane. The counts were found to be very similar to the pre-COVID TRINA data. Therefore, the turning movement count data is deemed representative of typical conditions.

There was minimal pedestrian activity at the study intersections during the peak hour. The Airport Road/ East Nye Lane intersection had 6 pedestrians during the AM peak hour; all other intersections had one or no pedestrians during the peak hours.

The existing condition traffic volumes, lane configurations, and controls are shown in **Figure 3**.

Intersection Level of Service

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

Table 2: Existing Conditions Intersection Level of Service Summary

Intersection	Intersection Control	AM Peak		PM Peak	
		LOS	Avg Delay[1] (sec/veh)	LOS	Avg Delay[1] (sec/veh)
1. College Parkway/ Airport Road	Side Street STOP				
Westbound Left		A	7.7	A	8.8
Northbound Left		B	14.9	C	21.6
Northbound Right		A	8.9	B	10.3
Overall		A	2.1	A	2.2
2. Airport Road/ East Nye Lane	Side Street STOP				
Eastbound Approach		B	10.2	B	11.8
Westbound Approach		B	10.5	B	12.2
Northbound Left		A	7.4	A	7.5
Southbound Left		A	7.5	A	7.5
Overall		A	4.1	A	4.2
5. College Parkway/ East Nye Lane	Side Street STOP				
Eastbound Approach		B	12.3	C	20.5
Westbound Approach		C	19.4	C	23.2
Northbound Left		A	7.7	A	9.0
Southbound Left		A	8.6	A	8.1
Overall		A	4.1	A	3.2

Notes: 1. Delay is reported in seconds per vehicle for the worst approach/movement for unsignalized (side-street stop controlled) intersections.
Source: Headway Transportation, 2021

As shown in **Table 2,** all study intersections currently operate within the LOS policy.

PROJECT GENERATED TRAFFIC

Trip Generation

Trip generation rates from the Institute of Transportation Engineers' (ITE) *Trip Generation Manual, 10th Edition* were used to develop trip generation estimates for the project. The rates for land use 210 "Single-Family Detached Housing" were used to determine the number of new trips generated. The proposed project consists of 61 units per the preliminary site plan.

Table 3 shows the Daily, AM peak hour, and PM peak hour trip generation estimates.

Table 3: Trip Generation Estimates

ITE Land Use	Size	Daily	AM Peak			PM Peak		
			Total	In	Out	Total	In	Out
Single-Family Detached Housing (210)	61 units	576	45	11	34	60	38	22

Source: Headway Transportation, 2021

As shown in **Table 3**, the proposed project is anticipated to generate approximately 576 Daily trips, 45 AM peak hour trips, and 60 PM peak hour trips.

Project Access

The preliminary site plan in **Figure 2** indicates two access points on East Nye Lane. The access on College Parkway will be for emergency only use.

Trip Distribution and Assignment

Traffic generated by the project was distributed to the road network based on the location of the project site, the relative locations of major activity centers, and access connection points to regional roadways.

The following percentages were used for distributing the project traffic:

- 35% to/from the south via Airport Road
- 20% to/from the south via College Parkway
- 35% to/from the west via College Parkway
- 5% to/from the west via East Nye Lane
- 5% to/from the east via East Nye Lane

The project trip distribution and assignment are shown on **Figure 4**. The access driveways on East Nye Lane are single lane inbound and outbound. Acceleration, deceleration, or left turn lanes are not needed at the project access points. The proposed lane configurations are shown on **Figure 5**. Deceleration lanes are not required for the emergency only access on College Parkway based on NDOT's Access Management System and Standards.

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**.

Intersection Level of Service Analysis

Table 4 presents the LOS analysis summary for the Existing Plus Project conditions and the detailed calculation sheets are provided in **Appendix B**.

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

Intersection	Control	AM Peak				PM Peak			
		Existing		Existing Plus Project		Existing		Existing Plus Project	
		LOS	Avg Delay[1] (sec/veh)	LOS	Avg Delay[1] (sec/veh)	LOS	Avg Delay[1] (sec/veh)	LOS	Avg Delay[1] (sec/veh)
1. College Parkway/ Airport Road	Side Street STOP								
Westbound Left		A	7.7	A	7.7	A	8.8	A	8.8
Northbound Left		B	14.9	C	15.3	C	21.6	C	22.3
Northbound Right		A	8.9	A	8.9	B	10.3	B	10.3
Overall		A	2.1	A	2.3	A	2.2	A	2.4
2. Airport Road/ East Nye Lane	Side Street STOP								
Eastbound Approach		B	10.2	B	10.3	B	11.8	B	12.3
Westbound Approach		B	10.5	B	10.8	B	12.2	B	12.8
Northbound Left		A	7.4	A	7.4	A	7.5	A	7.5
Southbound Left		A	7.5	A	7.5	A	7.5	A	7.6
Overall		A	4.1	A	4.8	A	4.2	A	4.6
3. East Nye Lane/ West Site Access	Side Street STOP								
Eastbound Left		N/A		A	7.4	N/A		A	7.5
Southbound Approach				A	9.0			A	9.1
Overall				A	1.3			A	1.0
4. East Nye Lane/ East Site Access	Side Street STOP								
Eastbound Left		N/A		A	7.4	N/A		A	7.5
Southbound Approach				A	8.9			A	9.1
Overall				A	1.4			A	1.0
5. College Parkway/ East Nye Lane	Side Street STOP								
Eastbound Approach		B	12.3	B	12.4	C	20.5	C	20.8
Westbound Approach		C	19.4	C	19.8	C	23.2	C	24.9
Northbound Left		A	7.7	A	7.7	A	9.0	A	9.0
Southbound Left		A	8.6	A	8.6	A	8.1	A	8.1
Overall		A	4.1	A	4.3	A	3.2	A	3.5

Notes: 1. Delay is reported in seconds per vehicle for the worst approach/movement for unsignalized (side-street stop controlled) intersections.
Source: Headway Transportation, 2021

As shown in **Table 4**, all study intersections operate within the LOS policy. The addition of project traffic has no significant impact on the intersection operations.

FUTURE CONDITIONS

Roadway Facilities

No significant modifications are expected at the study intersections. The 2050 Regional Transportation Plan (RTP) references two projects in the study area. The *College Parkway Connector* project (Number CC.26) is included as unfunded for the years 2031-2050 and is described as a new road to improve east-west circulation between College Parkway and Arrowhead Drive. The *District 1, College Parkway* project (Number CC.5) is included in the fiscally constrained plan, is anticipated in the years 2020-2030, and is described as pavement rehabilitation incorporating Complete Street elements between I-580 and US Hwy 50 East.

Traffic Volumes

A traffic volume growth rate to evaluate future conditions was developed using Average Daily Traffic (ADT) volumes from the CAMPO travel demand model. Growth rates and growth factors were calculated based on model data on Airport Road, East Nye Lane, and College Parkway for the year 2020 and constrained 2030 and 2050 years. These models take into account zoning for future development potential in the area. **Table 5** shows the future growth rate calculations on the study roadway segments.

Table 5: Future Year Growth Rate Calculations from CAMPO Model

Location -->	East Nye Lane	Airport Road	College Parkway
	E/O Airport Rd	N/O Nye Lane	E/O Airport Rd
2019 NDOT ADT	1,550	N/A	8,900
Demand Model Volumes			
2020 CAMPO ADT	1,824	2,047	11,260
2030 CAMPO ADT	2,030	2,186	12,957
2050 CAMPO ADT	2,509	2,291	15,624
Model Difference (2020-2030)	206	139	1,697
Model Difference (2020-2050)	685	244	4,364
Growth Rate Method			
% Total Change (2020-2050)	38%	12%	39%
% per Year Change	1.3%	0.4%	1.3%
Growth Factor to 2040	**1.25**	**1.08**	**1.26**
% Total Change (2020-2030)	11%	7%	15%
% per Year Change	1.1%	0.7%	1.5%
Growth Factor to 2040	**1.23**	**1.14**	**1.30**

Source: Headway Transportation, 2021

An average growth factor of 1.25 was applied to the existing turning movement volumes for the future year (20-yr horizon) scenario. **Figure 6** shows the Future Year (no project) traffic volumes at the study intersections.

Intersection Level of Service Analysis

Table 6 presents the Future Year (20-year horizon) conditions LOS summary and the detailed calculation sheets are provided in **Appendix C**.

Table 6: Future Conditions Level of Service Summary

Intersection	Intersection Control	AM Peak		PM Peak	
		LOS	Avg Delay[1] (sec/veh)	LOS	Avg Delay[1] (sec/veh)
1. College Parkway/ Airport Road	Side Street STOP				
Westbound Left		A	7.8	A	9.3
Northbound Left		B	19.2	E	37.5
Northbound Right		A	9.1	B	10.9
Overall		A	2.6	A	3.7
2. Airport Road/ East Nye Lane	Side Street STOP				
Eastbound Approach		B	10.7	B	13.1
Westbound Approach		B	11.3	B	14.1
Northbound Left		A	7.4	A	7.6
Southbound Left		A	7.6	A	7.6
Overall		A	4.4	A	4.6
5. College Parkway/ East Nye Lane	Side Street STOP				
Eastbound Approach		B	14.7	D	34.3
Westbound Approach		D	34.3	E	45.7
Northbound Left		A	7.8	A	9.7
Southbound Left		A	9.1	A	8.3
Overall		A	6.4	A	5.1

Notes: 1. Delay is reported in seconds per vehicle for the worst approach/movement for unsignalized (side-street stop controlled) intersections.
Source: Headway Transportation, 2021

As shown in **Table 6**, some individual movements are anticipated to operate at LOS E in the Future Year PM peak condition (without the project). The intersections will operate within policy LOS overall. It is understood that minor movements on arterials and collectors will commonly operate at LOS E or F during peak hours. This is a commonly accepted and manageable condition because it is not appropriate to construct signals, roundabouts, or all-way stop controls at every minor street intersecting major roadways.

FUTURE PLUS PROJECT CONDITIONS

Traffic Volumes

Future Plus Project traffic volumes were developed by adding the project generated trips (**Figure 4**) to the Future Year traffic volumes (**Figure 6**) and are shown on **Figure 7**.

Intersection Level of Service Analysis

Level of service calculations were performed using the Future Year (20-year horizon) Plus Project conditions. The results are presented in **Table 7** and the calculation sheets are provided in **Appendix D**.

Table 7: Future Year Plus Project Conditions Level of Service Summary

Intersection	Control	AM Peak				PM Peak			
		Future Year		Future Year Plus Project		Future Year		Future Year Plus Project	
		LOS	Avg Delay[1] (sec/veh)	LOS	Avg Delay[1] (sec/veh)	LOS	Avg Delay[1] (sec/veh)	LOS	Avg Delay[1] (sec/veh)
1. College Parkway/ Airport Road	Side Street STOP								
Westbound Left		A	7.8	A	7.8	A	9.3	A	9.3
Northbound Left		B	19.2	C	20.1	E	37.5	E	40.0
Northbound Right		A	9.1	A	9.1	B	10.9	B	10.9
Overall		A	2.6	A	3.0	A	3.7	A	4.2
2. Airport Road/ East Nye Lane	Side Street STOP								
Eastbound Approach		B	10.7	B	10.8	B	13.1	B	13.7
Westbound Approach		B	11.3	B	11.7	B	14.1	C	15.0
Northbound Left		A	7.4	A	7.4	A	7.6	A	7.6
Southbound Left		A	7.6	A	7.6	A	7.6	A	7.7
Overall		A	4.4	A	5.0	A	4.6	A	5.2
3. East Nye Lane/ West Site Access	Side Street STOP								
Eastbound Left		N/A		A	7.4	N/A		A	7.5
Southbound Approach				A	9.1			A	9.2
Overall				A	1.1			A	0.8
4. East Nye Lane/ East Site Access	Side Street STOP								
Eastbound Left		N/A		A	7.4	N/A		A	7.5
Southbound Approach				A	9.0			A	9.3
Overall				A	1.2			A	0.9

Table 7 Continued: Future Year Plus Project Conditions Level of Service Summary

5. College Parkway/ East Nye Lane	Side Street STOP								
Eastbound Approach		B	14.7	B	14.9	D	34.3	E	35.6
Westbound Approach		D	34.3	E	36.2	E	45.7	F	52.1
Northbound Left		A	7.8	A	7.8	A	9.7	A	9.7
Southbound Left		A	9.1	A	9.1	A	8.3	A	8.3
Overall		A	6.4	A	6.8	A	5.1	A	5.7

Notes: 1. Delay is reported in seconds per vehicle for the worst approach/movement for unsignalized (side-street stop controlled) intersections.
Source: Headway Transportation, 2021

As shown in **Table 7**, some side-street movements are anticipated to operate at LOS E or F; however, the LOS results are very similar with and without the project (delay on any movement does not increase by more than five seconds). The westbound approach of East Nye Lane/ College Parkway is shown to degrade to LOS F with the addition of project traffic; however, the project adds only two trips to this movement, and therefore the project has no significant overall impact.

RECOMMENDATIONS

No intersection improvements are justified as a result of the project. For broader planning purposes, potential improvements were evaluated at the study intersections with LOS E or F movements.

College Parkway/ Airport Road

The striped median on the west leg on College Parkway could be converted to a northbound left turn receiving lane allowing for two-stage left-turns from the northbound approach. This modification would improve the operation for the northbound left turn from an LOS E to an LOS C. The raised concrete median island would have to be removed or relocated to accommodate the striping change. The project traffic represents approximately 10% of the northbound left turn movement (existing plus project volumes).

College Parkway/ East Nye Lane

A high-level review of East Nye Lane/ College Parkway intersection was conducted to determine if the existing control is the most appropriate. Highway Capacity Manual (HCM) Exhibit 10-15, included in **Appendix E,** shows the likely appropriate intersection control based on the main street and minor street peak hour volumes. The exhibit indicates that using the highest volume scenario, the Future Year Plus Project, two-way stop control is still appropriate.

The Manual on Uniform Traffic Control (MUTCD) *Signal Warrant 2 – Four Hour Volume* was also reviewed. This warrant considers the minimum traffic volumes (major and minor street) over a four-hour period to warrant a signal. The criteria are provided in **Appendix E (Figure 4C-1)** and a summary is provided in **Table 8**.

Table 8: Four-Hour Signal Warrant
Future Year Plus Project Volumes

Hour	Major Street Combined (vph)	Minor Street Approach (vph)	Hour Warrant Met?
1 (AM Hour 1)	785	145	No
2 (AM Hour 2)	680	80	No
3 (PM Hour 1)	1160	95	No
4 (PM Hour 2)	1050	90	No

This abbreviated signal warrant analysis indicates that a signal is not appropriate. Turn lanes were also considered on East Nye Lane but were found to provide little benefit on the operation. Therefore, adding turn lanes is not recommended.

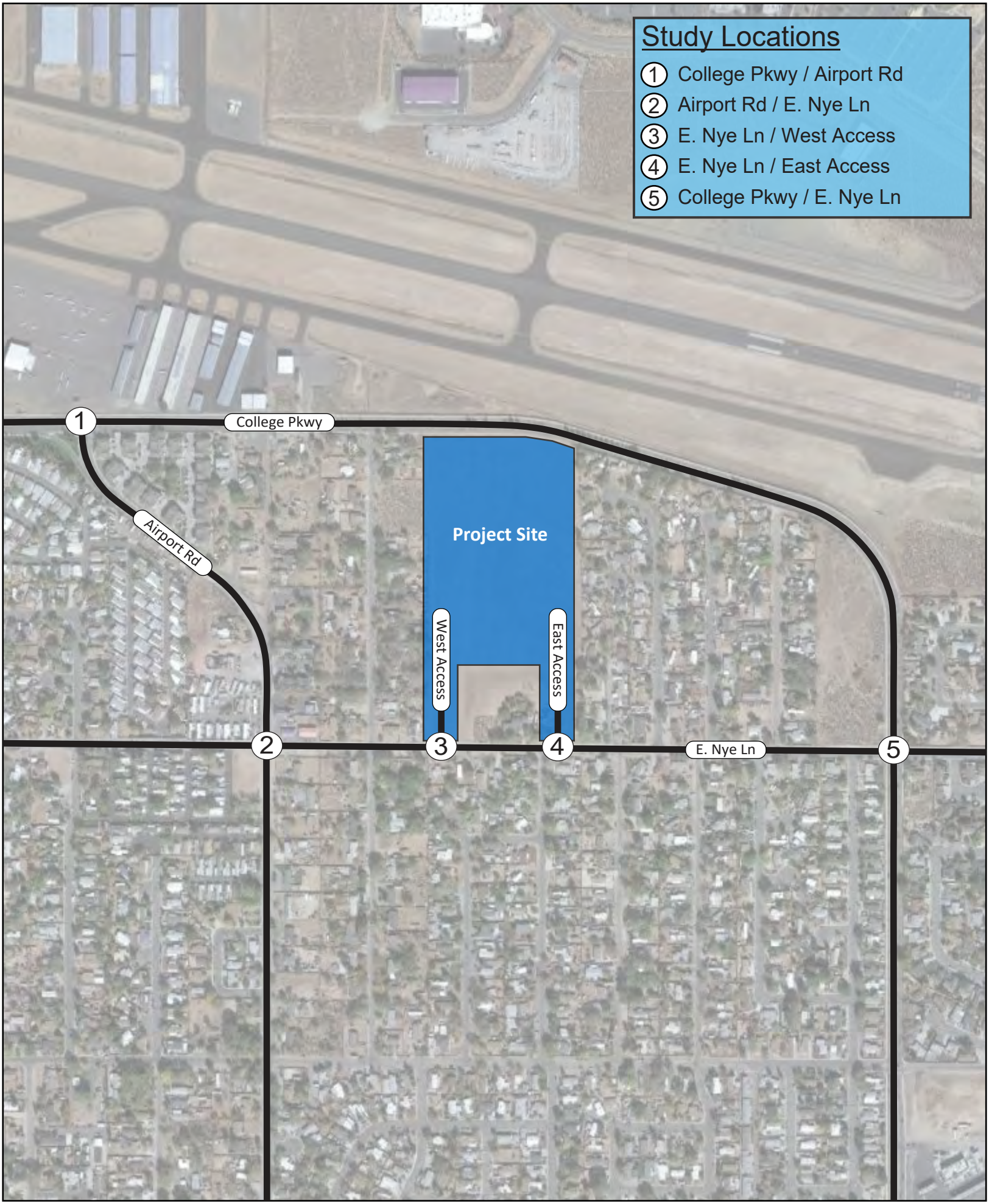
Recommendations related to the project are:

- Construct half street improvements and sidewalk on the East Nye Lane property frontage
- At the College Parkway/ Airport Road intersection, consideration should be given to converting the striped median on the west leg of College Parkway to a northbound left turn receiving lane.

CONCLUSIONS

The following is a list of key findings:

- The proposed project is anticipated to generate approximately 576 Daily trips, 45 AM peak hour trips, and 60 PM peak hour trips.
- The two proposed site driveways on East Nye Lane will operate acceptably with single entry and exit lanes. Left turn lanes, acceleration or deceleration lanes are not needed.
- The emergency-only access on College Parkway is right-in/right-out and does not require deceleration lanes.
- The study intersections operate very similarly with or without the project traffic (60 peak hour trips). No improvements are recommended due to the addition of project traffic.
- The project should construct sidewalk and half street improvements on the East Nye Lane property frontage. At the College Parkway/Airport Road intersection, consideration should be given to converting the striped median on the west leg of College Parkway to a northbound left turn receiving lane.



HEADWAY TRANSPORTATION

NO SCALE

Legend:

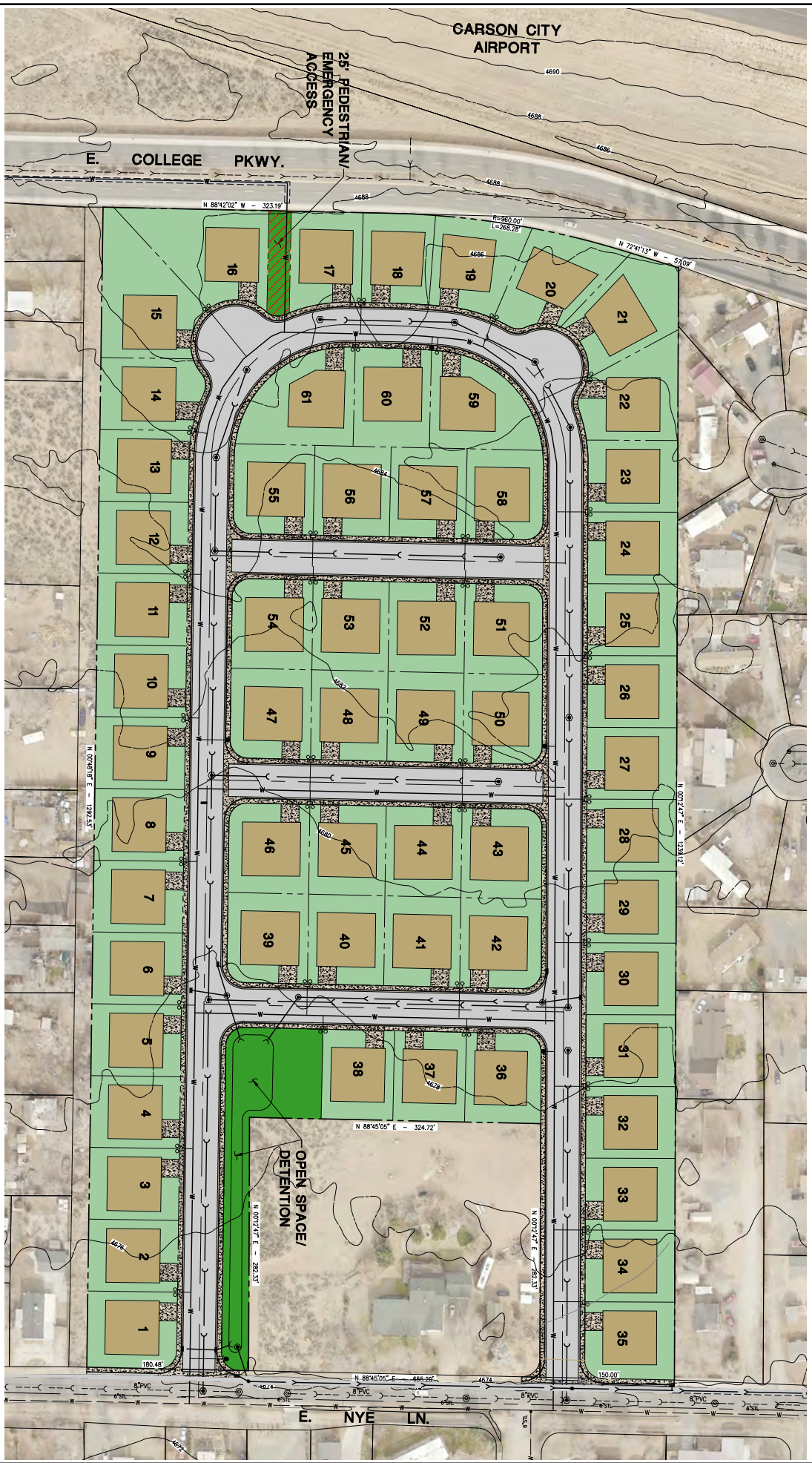
(#) Study Intersection Project Site

Figure 1

E. Nye Lane Su 115 on

Traffic Impact Study

Project Location

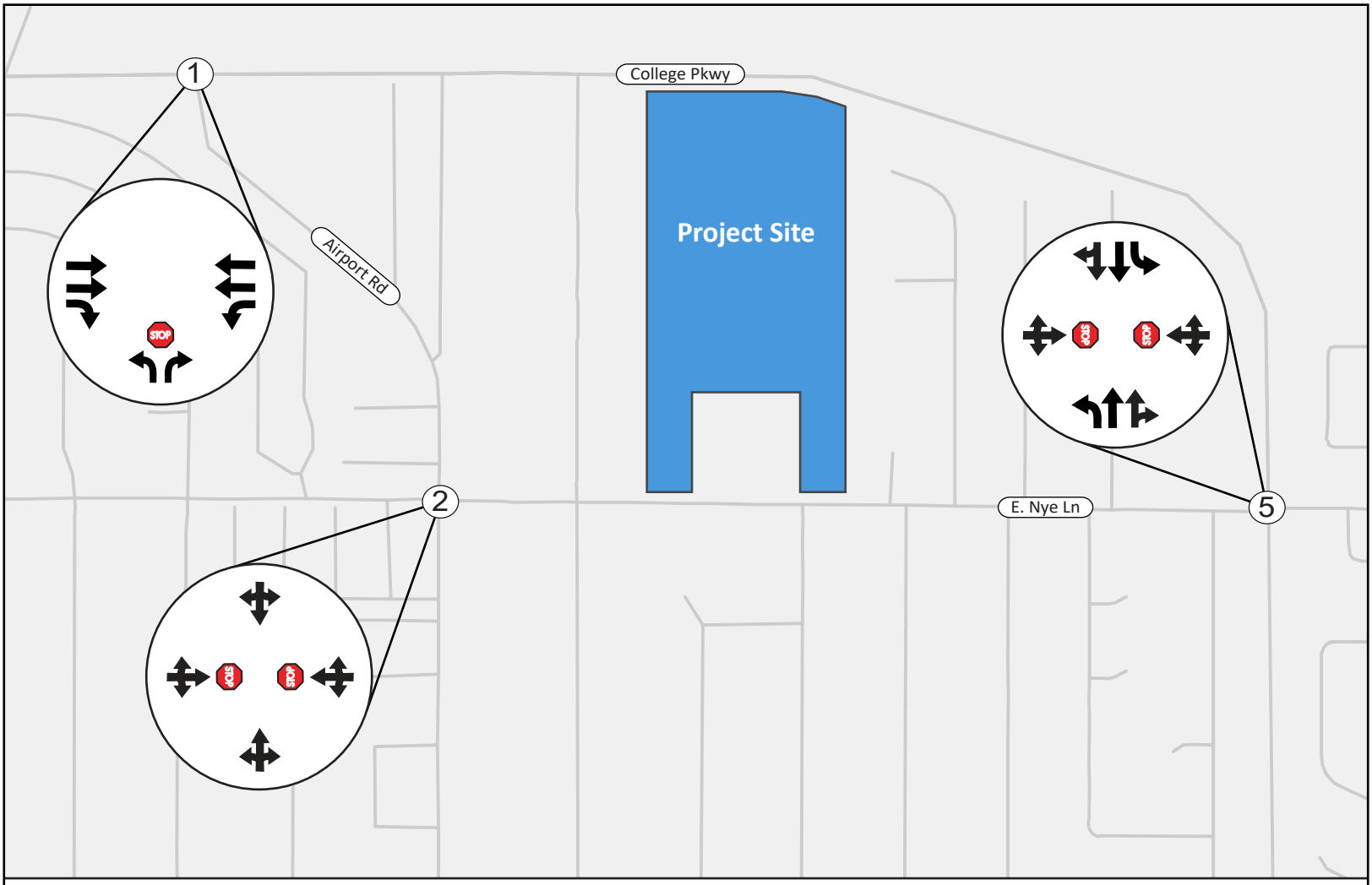


NO SCALE

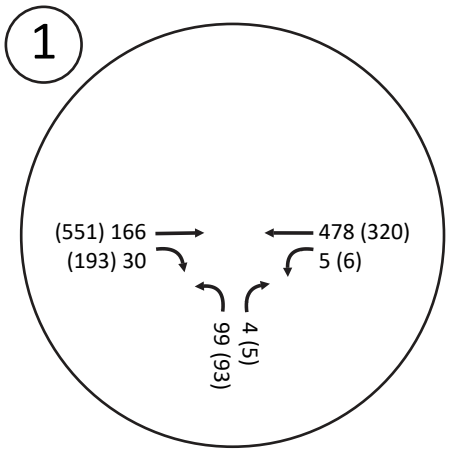
Figure 2

E. Nye Lane Su**116**on Traffic Impact Study

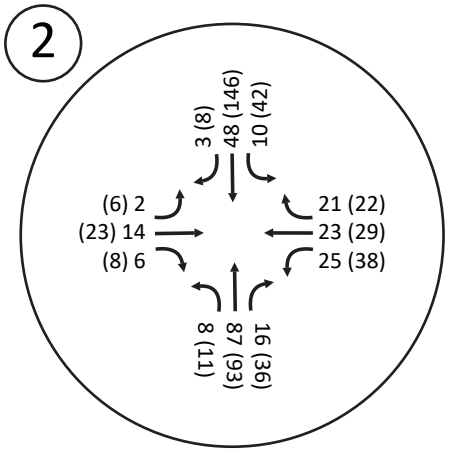
Preliminary Site Plan



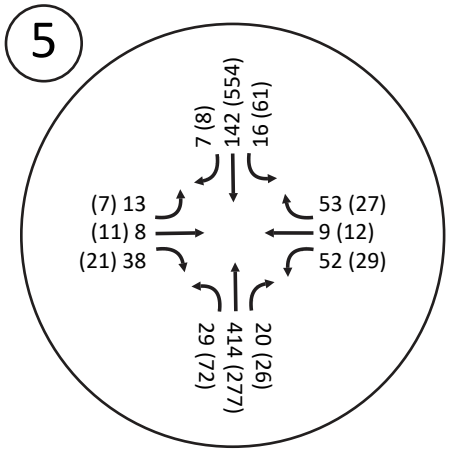
College Pkwy / Airport Rd



Airport Rd / E. Nye Ln



College Pkwy / E. Nye Ln



HEADWAY TRANSPORTATION

NO SCALE

Legend:

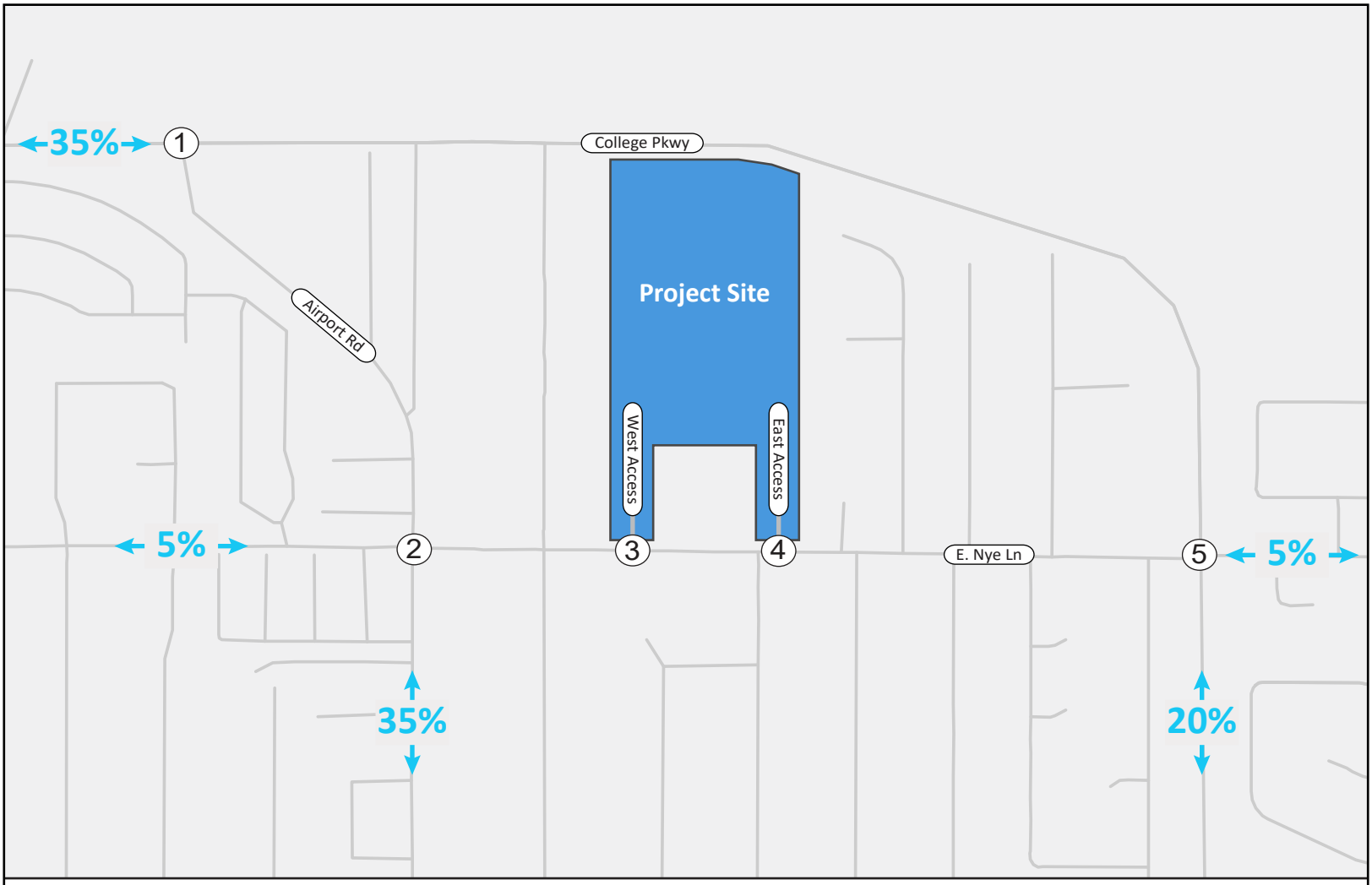
(#) Study Intersection Project Site Stop

AM Peak Hour Volume (PM Peak Hour Volume)

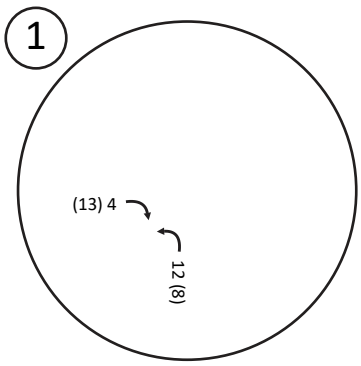
Figure 3

E. Nye Lane Su 117 on Traffic Impact Study

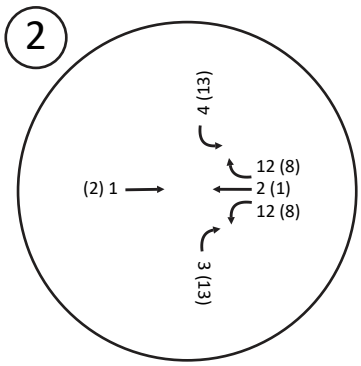
Existing Lane Configurations, Controls, and Traffic Volumes



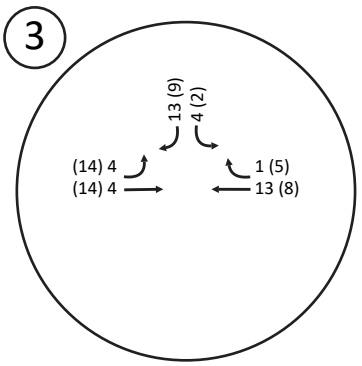
College Pkwy / Airport Rd



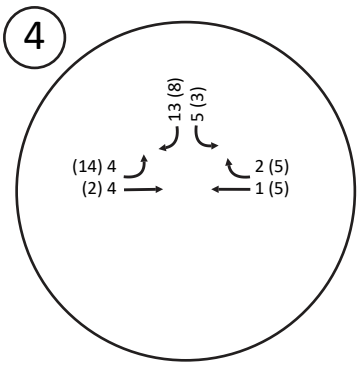
Airport Rd / E. Nye Ln



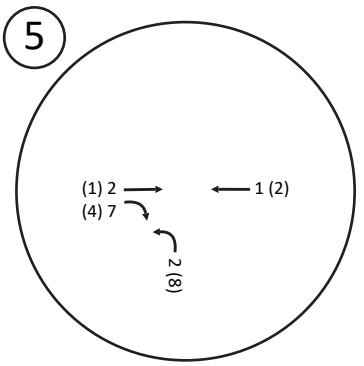
E. Nye Ln / West Access



E. Nye Ln / East Access



College Pkwy / E. Nye Ln



HEADWAY TRANSPORTATION

NO SCALE

Legend:

(#) Study Intersection Project Site XX% Trip Distribution

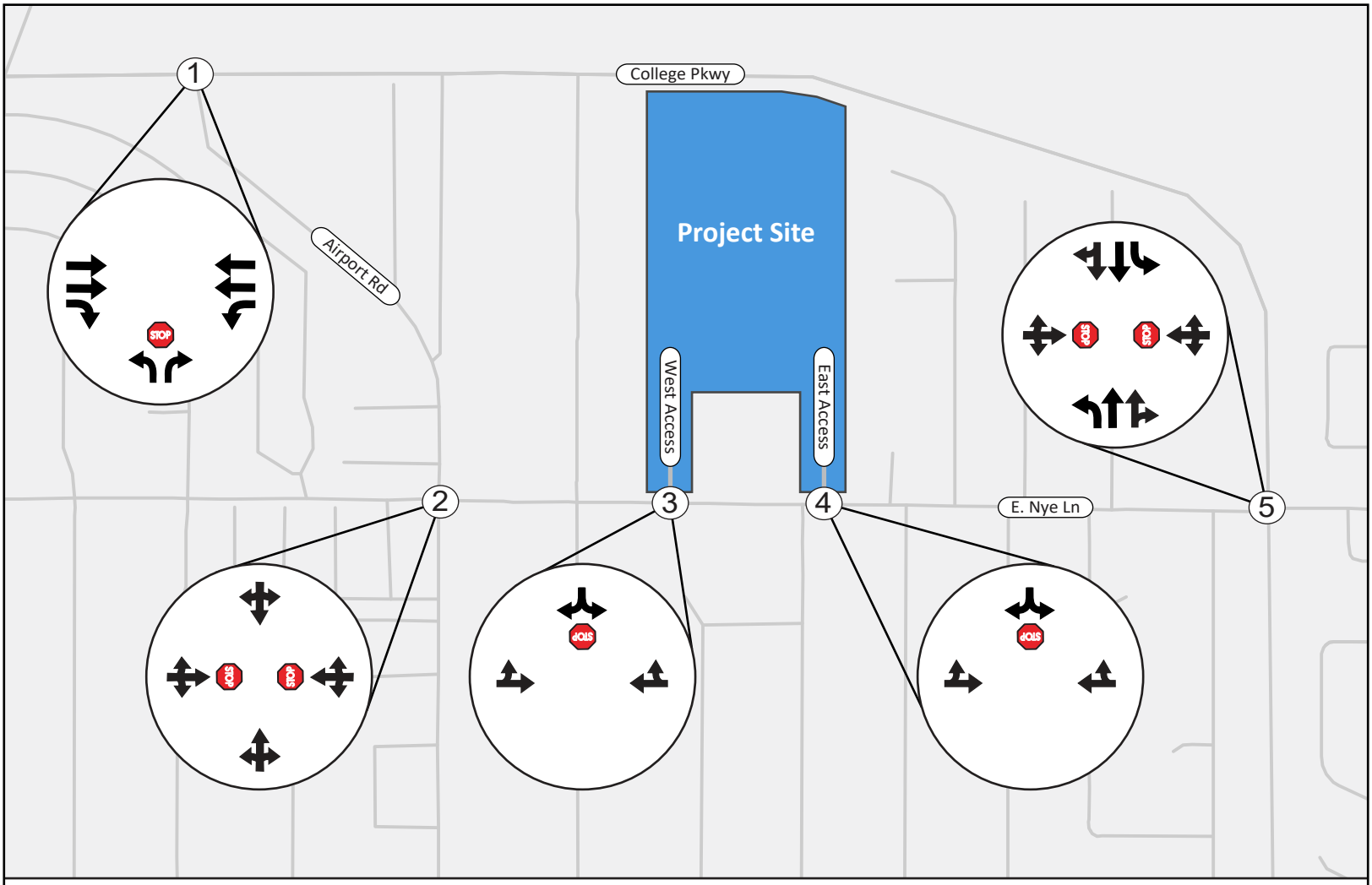
AM Peak Hour Volume (PM Peak Hour Volume)

Figure 4

E. Nye Lane Su 118 on

Traffic Impact Study

Project Trip Distribution and Assignment



College Pkwy / Airport Rd

1

(551) 166
(206) 34
478 (320)
5 (6)
111 (101)
4 (5)

Airport Rd / E. Nye Ln

2

3 (8)
48 (146)
14 (55)
(6) 2
(25) 15
(8) 6
33 (30)
25 (30)
37 (46)
8 (11)
87 (93)
19 (49)

E. Nye Ln / West Access

3

13 (9)
4 (2)
(14) 4
(84) 54
1 (5)
70 (99)

E. Nye Ln / East Access

4

13 (8)
5 (3)
(14) 4
(72) 54
2 (5)
58 (96)

College Pkwy / E. Nye Ln

5

7 (8)
142 (554)
16 (61)
(7) 13
(12) 10
(25) 45
53 (27)
10 (14)
52 (29)
31 (80)
414 (277)
20 (26)

HEADWAY TRANSPORTATION

NO SCALE

Legend:

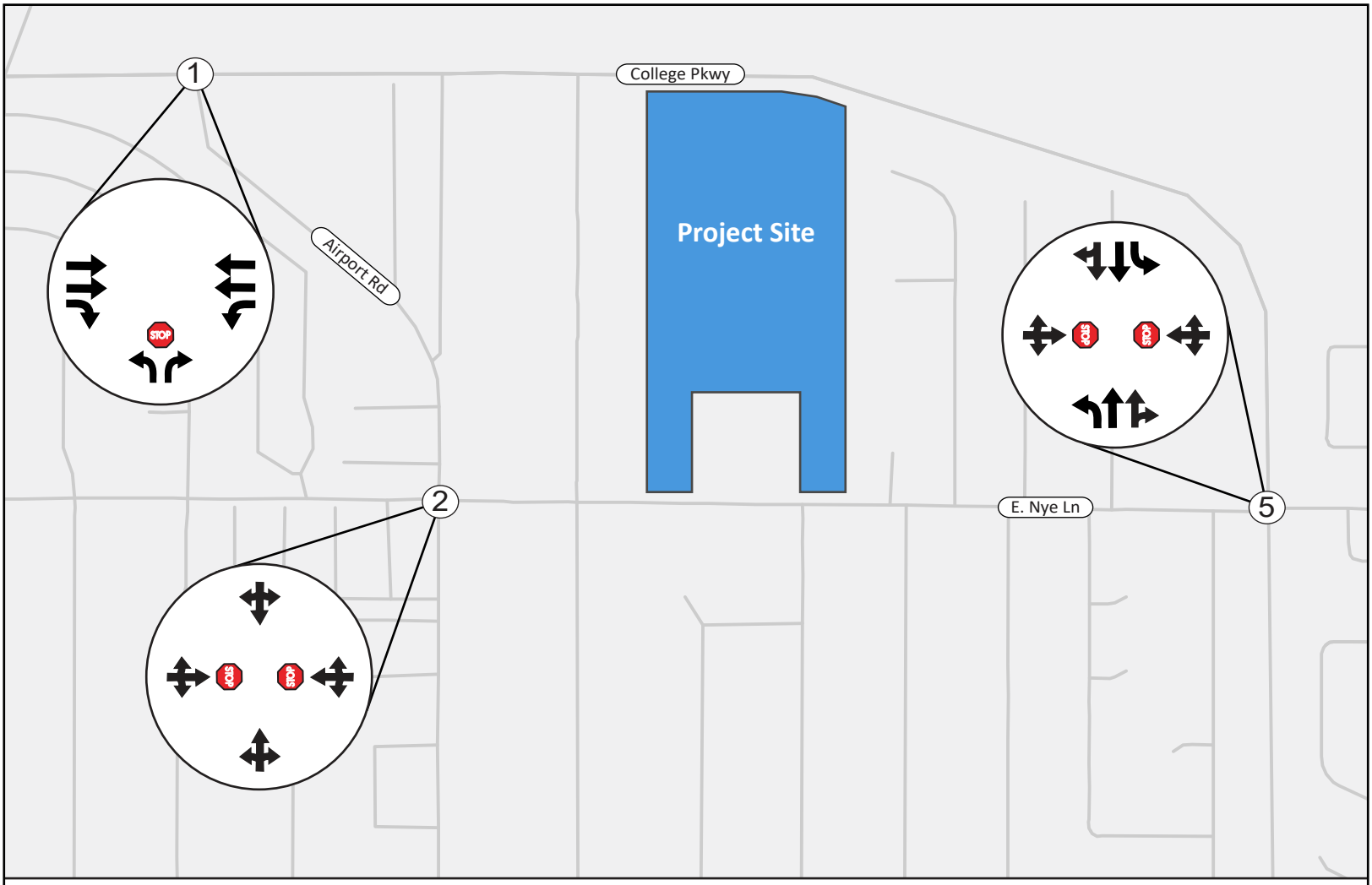
(#) Study Intersection Project Site Stop

AM Peak Hour Volume (PM Peak Hour Volume)

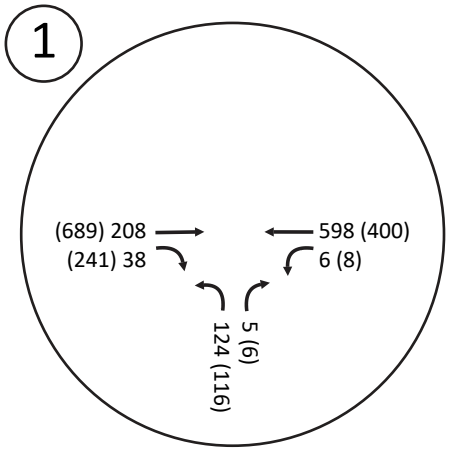
Figure 5

E. Nye Lane Su 119 on
Traffic Impact Study

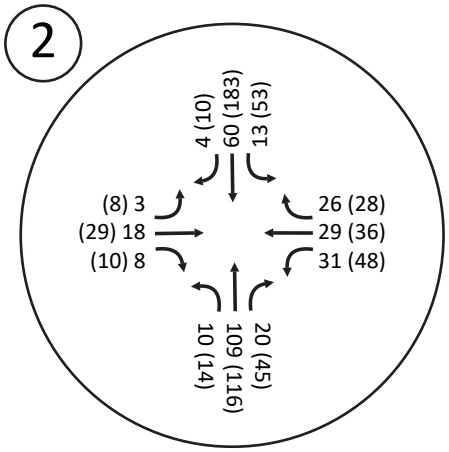
Existing Plus Project Lane Configurations, Controls, and Traffic Volumes



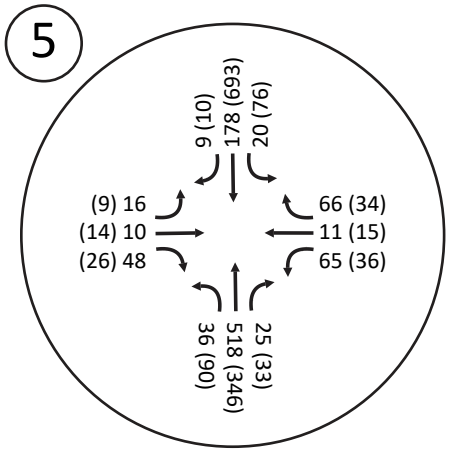
College Pkwy / Airport Rd



Airport Rd / E. Nye Ln



College Pkwy / E. Nye Ln



HEADWAY TRANSPORTATION

NO SCALE

Legend:

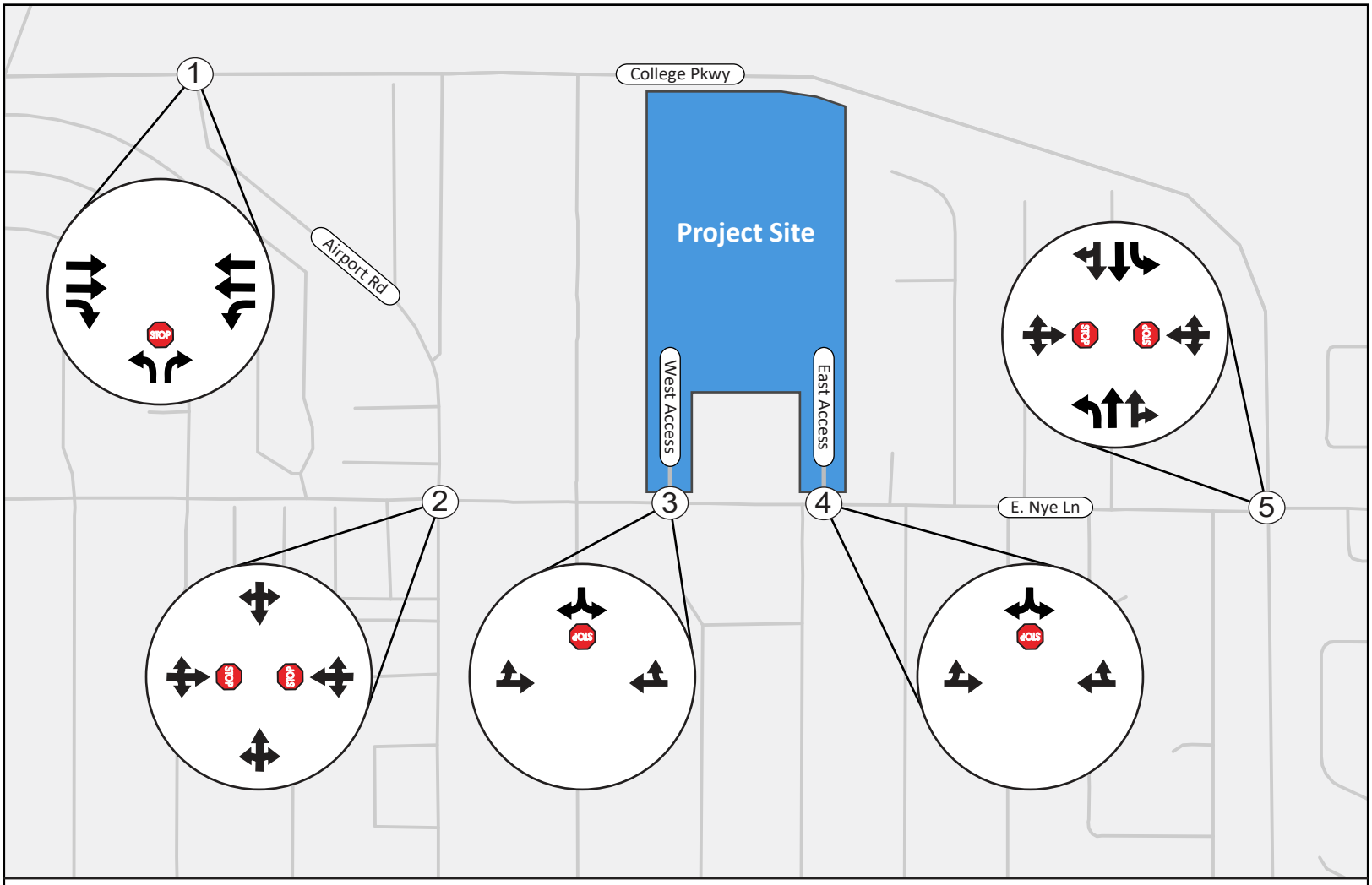
(#) Study Intersection Project Site Stop

AM Peak Hour Volume (PM Peak Hour Volume)

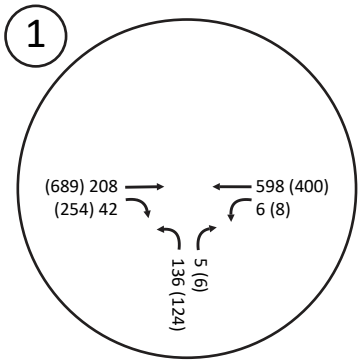
Figure 6

E. Nye Lane Su**120** on Traffic Impact Study

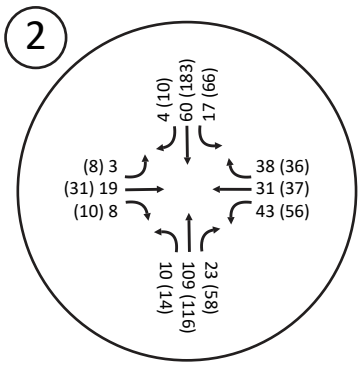
Future Lane Configurations, Controls, and Traffic Volumes



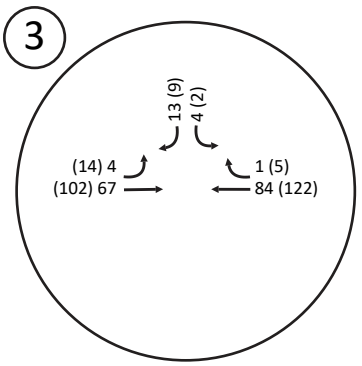
College Pkwy / Airport Rd



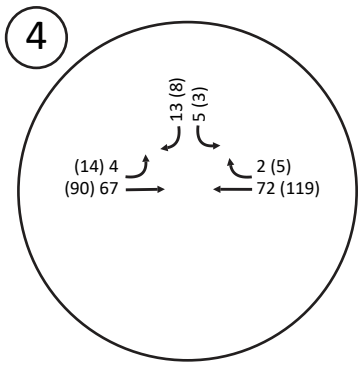
Airport Rd / E. Nye Ln



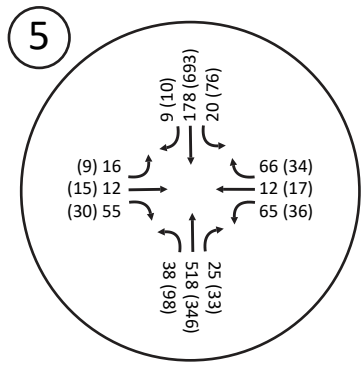
E. Nye Ln / West Access



E. Nye Ln / East Access



College Pkwy / E. Nye Ln



HEADWAY TRANSPORTATION

NO SCALE

Legend:

(#) Study Intersection Project Site Stop

AM Peak Hour Volume (PM Peak Hour Volume)

Figure 7

E. Nye Lane Su 121 on
Traffic Impact Study

Future Plus Project Lane Configurations, Controls, and Traffic Volumes

Appendix A
Existing Conditions
LOS Calculations

Intersection	
Int Delay, s/veh	2.1

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	166	30	5	478	99	4
Future Vol, veh/h	166	30	5	478	99	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	200	500	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	205	37	6	590	122	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	205	0	512	103
Stage 1	-	-	-	-	205	-
Stage 2	-	-	-	-	307	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	0	1356	-	489	929
Stage 1	-	0	-	-	806	-
Stage 2	-	0	-	-	717	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	1356	-	487	929
Mov Cap-2 Maneuver	-	-	-	-	487	-
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	714	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	14.7
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	487	929	-	1356	-
HCM Lane V/C Ratio	0.251	0.005	-	0.005	-
HCM Control Delay (s)	14.9	8.9	-	7.7	-
HCM Lane LOS	B	A	-	A	-
HCM 95th %tile Q(veh)	1	0	-	0	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	2	14	6	25	23	21	8	87	16	10	48	3
Future Vol, veh/h	2	14	6	25	23	21	8	87	16	10	48	3
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	17	7	31	28	26	10	107	20	12	59	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	249	232	61	234	224	117	63	0	0	127	0	0
Stage 1	85	85	-	137	137	-	-	-	-	-	-	-
Stage 2	164	147	-	97	87	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	702	666	1001	719	673	932	1533	-	-	1453	-	-
Stage 1	920	822	-	864	781	-	-	-	-	-	-	-
Stage 2	836	774	-	907	821	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	652	655	1001	691	662	932	1533	-	-	1453	-	-
Mov Cap-2 Maneuver	652	655	-	691	662	-	-	-	-	-	-	-
Stage 1	914	815	-	858	776	-	-	-	-	-	-	-
Stage 2	778	769	-	873	814	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.2	10.5	0.5	1.2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1533	-	-	723	738	1453	-	-
HCM Lane V/C Ratio	0.006	-	-	0.038	0.115	0.008	-	-
HCM Control Delay (s)	7.4	0	-	10.2	10.5	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.4	0	-	-

Intersection	
Int Delay, s/veh	4.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	8	38	52	9	53	29	414	20	16	142	7
Future Vol, veh/h	13	8	38	52	9	53	29	414	20	16	142	7
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	-	-	-	-	-	-	370	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	16	10	47	64	11	65	36	511	25	20	175	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	553	828	92	729	820	268	184	0	0	536	0	0
Stage 1	220	220	-	596	596	-	-	-	-	-	-	-
Stage 2	333	608	-	133	224	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	414	303	944	309	306	727	1381	-	-	1021	-	-
Stage 1	759	717	-	455	488	-	-	-	-	-	-	-
Stage 2	652	482	-	854	715	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	353	289	944	276	292	727	1381	-	-	1021	-	-
Mov Cap-2 Maneuver	353	289	-	276	292	-	-	-	-	-	-	-
Stage 1	739	703	-	443	475	-	-	-	-	-	-	-
Stage 2	564	469	-	784	701	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.3	19.4	0.5	0.8
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1381	-	-	563	390	1021	-	-
HCM Lane V/C Ratio	0.026	-	-	0.129	0.361	0.019	-	-
HCM Control Delay (s)	7.7	-	-	12.3	19.4	8.6	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.4	1.6	0.1	-	-

Intersection	
Int Delay, s/veh	2.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	551	193	6	320	93	5
Future Vol, veh/h	551	193	6	320	93	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	200	500	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	612	214	7	356	103	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	612	0	804	306
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	192	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	0	963	-	321	690
Stage 1	-	0	-	-	504	-
Stage 2	-	0	-	-	822	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	963	-	319	690
Mov Cap-2 Maneuver	-	-	-	-	319	-
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	816	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	21
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	319	690	-	963	-
HCM Lane V/C Ratio	0.324	0.008	-	0.007	-
HCM Control Delay (s)	21.6	10.3	-	8.8	-
HCM Lane LOS	C	B	-	A	-
HCM 95th %tile Q(veh)	1.4	0	-	0	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	6	23	8	38	29	22	11	93	36	42	146	8
Future Vol, veh/h	6	23	8	38	29	22	11	93	36	42	146	8
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	6	24	8	39	30	23	11	96	37	43	151	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	404	396	155	394	382	115	159	0	0	133	0	0
Stage 1	241	241	-	137	137	-	-	-	-	-	-	-
Stage 2	163	155	-	257	245	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	559	543	893	567	553	940	1427	-	-	1458	-	-
Stage 1	765	708	-	869	785	-	-	-	-	-	-	-
Stage 2	841	771	-	750	705	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	506	521	893	526	531	940	1427	-	-	1458	-	-
Mov Cap-2 Maneuver	506	521	-	526	531	-	-	-	-	-	-	-
Stage 1	759	685	-	862	779	-	-	-	-	-	-	-
Stage 2	783	765	-	694	682	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	11.8	12.2	0.6	1.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1427	-	-	570	592	1458	-	-
HCM Lane V/C Ratio	0.008	-	-	0.067	0.155	0.03	-	-
HCM Control Delay (s)	7.5	0	-	11.8	12.2	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.5	0.1	-	-

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	11	21	29	12	27	72	277	26	61	554	8
Future Vol, veh/h	7	11	21	29	12	27	72	277	26	61	554	8
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	-	-	-	-	-	-	370	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	7	12	22	31	13	29	77	295	28	65	589	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1032	1201	299	894	1191	162	598	0	0	323	0	0
Stage 1	724	724	-	463	463	-	-	-	-	-	-	-
Stage 2	308	477	-	431	728	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.52	6.52	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.51	4.01	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	188	185	700	237	188	857	982	-	-	1241	-	-
Stage 1	385	431	-	551	565	-	-	-	-	-	-	-
Stage 2	680	557	-	576	429	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	155	162	700	196	164	857	982	-	-	1241	-	-
Mov Cap-2 Maneuver	155	162	-	196	164	-	-	-	-	-	-	-
Stage 1	355	409	-	508	521	-	-	-	-	-	-	-
Stage 2	591	514	-	513	407	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.5	23.2	1.7	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	982	-	-	273	269	1241	-	-
HCM Lane V/C Ratio	0.078	-	-	0.152	0.269	0.052	-	-
HCM Control Delay (s)	9	-	-	20.5	23.2	8.1	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.5	1.1	0.2	-	-

Appendix B
Existing Plus Project Conditions
LOS Calculations

Intersection	
Int Delay, s/veh	2.3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	166	34	5	478	111	4
Future Vol, veh/h	166	34	5	478	111	4
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	200	500	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	205	42	6	590	137	5

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	205	0	512	103
Stage 1	-	-	-	-	205	-
Stage 2	-	-	-	-	307	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	0	1356	-	489	929
Stage 1	-	0	-	-	806	-
Stage 2	-	0	-	-	717	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	1356	-	487	929
Mov Cap-2 Maneuver	-	-	-	-	487	-
Stage 1	-	-	-	-	806	-
Stage 2	-	-	-	-	714	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	15.1
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	487	929	-	1356	-
HCM Lane V/C Ratio	0.281	0.005	-	0.005	-
HCM Control Delay (s)	15.3	8.9	-	7.7	-
HCM Lane LOS	C	A	-	A	-
HCM 95th %tile Q(veh)	1.1	0	-	0	-

Intersection	
Int Delay, s/veh	4.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	2	15	6	37	25	33	8	87	19	14	48	3
Future Vol, veh/h	2	15	6	37	25	33	8	87	19	14	48	3
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	2	19	7	46	31	41	10	107	23	17	59	4

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	270	245	61	247	236	119	63	0	0	130	0	0
Stage 1	95	95	-	139	139	-	-	-	-	-	-	-
Stage 2	175	150	-	108	97	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	681	655	1001	705	663	930	1533	-	-	1449	-	-
Stage 1	909	814	-	862	780	-	-	-	-	-	-	-
Stage 2	824	771	-	895	813	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	618	643	1001	675	650	930	1533	-	-	1449	-	-
Mov Cap-2 Maneuver	618	643	-	675	650	-	-	-	-	-	-	-
Stage 1	903	804	-	856	775	-	-	-	-	-	-	-
Stage 2	751	766	-	858	803	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.3	10.8	0.5	1.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1533	-	-	706	738	1449	-	-
HCM Lane V/C Ratio	0.006	-	-	0.04	0.159	0.012	-	-
HCM Control Delay (s)	7.4	0	-	10.3	10.8	7.5	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.1	0.6	0	-	-

Intersection	
Int Delay, s/veh	1.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	5	54	70	1	4	13
Future Vol, veh/h	5	54	70	1	4	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	6	67	86	1	5	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	87	0	-	0	166	87
Stage 1	-	-	-	-	87	-
Stage 2	-	-	-	-	79	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1503	-	-	-	822	969
Stage 1	-	-	-	-	934	-
Stage 2	-	-	-	-	942	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1503	-	-	-	819	969
Mov Cap-2 Maneuver	-	-	-	-	819	-
Stage 1	-	-	-	-	930	-
Stage 2	-	-	-	-	942	-

Approach	EB	WB	SB
HCM Control Delay, s	0.6	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1503	-	-	-	929
HCM Lane V/C Ratio	0.004	-	-	-	0.023
HCM Control Delay (s)	7.4	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	54	58	2	5	13
Future Vol, veh/h	4	54	58	2	5	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	5	67	72	2	6	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	74	0	-	0	150	73
Stage 1	-	-	-	-	73	-
Stage 2	-	-	-	-	77	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1519	-	-	-	840	986
Stage 1	-	-	-	-	947	-
Stage 2	-	-	-	-	943	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1519	-	-	-	837	986
Mov Cap-2 Maneuver	-	-	-	-	837	-
Stage 1	-	-	-	-	944	-
Stage 2	-	-	-	-	943	-

Approach	EB	WB	SB
HCM Control Delay, s	0.5	0	8.9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1519	-	-	-	940
HCM Lane V/C Ratio	0.003	-	-	-	0.024
HCM Control Delay (s)	7.4	0	-	-	8.9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	4.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	10	45	52	10	53	31	414	20	16	142	7
Future Vol, veh/h	13	10	45	52	10	53	31	414	20	16	142	7
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	-	-	-	-	-	-	370	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	16	12	56	64	12	65	38	511	25	20	175	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	558	832	92	734	824	268	184	0	0	536	0	0
Stage 1	220	220	-	600	600	-	-	-	-	-	-	-
Stage 2	338	612	-	134	224	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	410	301	944	306	305	727	1381	-	-	1021	-	-
Stage 1	759	717	-	452	486	-	-	-	-	-	-	-
Stage 2	647	480	-	853	715	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	348	287	944	269	291	727	1381	-	-	1021	-	-
Mov Cap-2 Maneuver	348	287	-	269	291	-	-	-	-	-	-	-
Stage 1	738	703	-	439	472	-	-	-	-	-	-	-
Stage 2	558	467	-	773	701	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.4	19.8	0.5	0.8
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1381	-	-	567	383	1021	-	-
HCM Lane V/C Ratio	0.028	-	-	0.148	0.371	0.019	-	-
HCM Control Delay (s)	7.7	-	-	12.4	19.8	8.6	-	-
HCM Lane LOS	A	-	-	B	C	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.5	1.7	0.1	-	-

Intersection	
Int Delay, s/veh	2.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	551	206	6	320	101	5
Future Vol, veh/h	551	206	6	320	101	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	200	500	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	612	229	7	356	112	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	612	0	804	306
Stage 1	-	-	-	-	612	-
Stage 2	-	-	-	-	192	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	0	963	-	321	690
Stage 1	-	0	-	-	504	-
Stage 2	-	0	-	-	822	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	963	-	319	690
Mov Cap-2 Maneuver	-	-	-	-	319	-
Stage 1	-	-	-	-	504	-
Stage 2	-	-	-	-	816	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	21.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	319	690	-	963	-
HCM Lane V/C Ratio	0.352	0.008	-	0.007	-
HCM Control Delay (s)	22.3	10.3	-	8.8	-
HCM Lane LOS	C	B	-	A	-
HCM 95th %tile Q(veh)	1.5	0	-	0	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	6	25	8	46	30	30	11	93	49	55	146	8
Future Vol, veh/h	6	25	8	46	30	30	11	93	49	55	146	8
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	6	26	8	47	31	31	11	96	51	57	151	8

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	444	438	155	430	417	122	159	0	0	147	0	0
Stage 1	269	269	-	144	144	-	-	-	-	-	-	-
Stage 2	175	169	-	286	273	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	526	514	893	537	528	932	1427	-	-	1441	-	-
Stage 1	739	688	-	861	780	-	-	-	-	-	-	-
Stage 2	829	761	-	724	686	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	466	488	893	491	501	932	1427	-	-	1441	-	-
Mov Cap-2 Maneuver	466	488	-	491	501	-	-	-	-	-	-	-
Stage 1	733	658	-	854	774	-	-	-	-	-	-	-
Stage 2	763	755	-	660	657	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	12.3	12.8	0.5	2
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1427	-	-	534	571	1441	-	-
HCM Lane V/C Ratio	0.008	-	-	0.075	0.191	0.039	-	-
HCM Control Delay (s)	7.5	0	-	12.3	12.8	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.7	0.1	-	-

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	84	99	5	2	9
Future Vol, veh/h	14	84	99	5	2	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	91	108	5	2	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	113	0	-	0	232	111
Stage 1	-	-	-	-	111	-
Stage 2	-	-	-	-	121	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1476	-	-	-	756	942
Stage 1	-	-	-	-	914	-
Stage 2	-	-	-	-	904	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1476	-	-	-	748	942
Mov Cap-2 Maneuver	-	-	-	-	748	-
Stage 1	-	-	-	-	904	-
Stage 2	-	-	-	-	904	-

Approach	EB	WB	SB
HCM Control Delay, s	1.1	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1476	-	-	-	900
HCM Lane V/C Ratio	0.01	-	-	-	0.013
HCM Control Delay (s)	7.5	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	72	96	5	3	8
Future Vol, veh/h	14	72	96	5	3	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	78	104	5	3	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	109	0	-	0	215	107
Stage 1	-	-	-	-	107	-
Stage 2	-	-	-	-	108	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1481	-	-	-	773	947
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	916	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1481	-	-	-	764	947
Mov Cap-2 Maneuver	-	-	-	-	764	-
Stage 1	-	-	-	-	907	-
Stage 2	-	-	-	-	916	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1481	-	-	-	889
HCM Lane V/C Ratio	0.01	-	-	-	0.013
HCM Control Delay (s)	7.5	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	3.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	7	12	25	29	14	27	80	277	26	61	554	8
Future Vol, veh/h	7	12	25	29	14	27	80	277	26	61	554	8
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	-	-	-	-	-	-	370	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	7	13	27	31	15	29	85	295	28	65	589	9

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1049	1217	299	910	1207	162	598	0	0	323	0	0
Stage 1	724	724	-	479	479	-	-	-	-	-	-	-
Stage 2	325	493	-	431	728	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.52	6.52	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.51	4.01	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	183	181	700	231	183	857	982	-	-	1241	-	-
Stage 1	385	431	-	539	556	-	-	-	-	-	-	-
Stage 2	664	548	-	576	429	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	147	157	700	187	158	857	982	-	-	1241	-	-
Mov Cap-2 Maneuver	147	157	-	187	158	-	-	-	-	-	-	-
Stage 1	352	409	-	492	508	-	-	-	-	-	-	-
Stage 2	569	500	-	509	407	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.8	24.9	1.9	0.8
HCM LOS	C	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	982	-	-	275	254	1241	-	-
HCM Lane V/C Ratio	0.087	-	-	0.17	0.293	0.052	-	-
HCM Control Delay (s)	9	-	-	20.8	24.9	8.1	-	-
HCM Lane LOS	A	-	-	C	C	A	-	-
HCM 95th %tile Q(veh)	0.3	-	-	0.6	1.2	0.2	-	-

Appendix C
Future Conditions
LOS Calculations

Intersection	
Int Delay, s/veh	2.6

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	208	38	6	598	124	5
Future Vol, veh/h	208	38	6	598	124	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	200	500	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	257	47	7	738	153	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	257	0	640	129
Stage 1	-	-	-	-	257	-
Stage 2	-	-	-	-	383	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	0	1298	-	406	894
Stage 1	-	0	-	-	759	-
Stage 2	-	0	-	-	656	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	1298	-	404	894
Mov Cap-2 Maneuver	-	-	-	-	404	-
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	653	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	18.8
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	404	894	-	1298	-
HCM Lane V/C Ratio	0.379	0.007	-	0.006	-
HCM Control Delay (s)	19.2	9.1	-	7.8	-
HCM Lane LOS	C	A	-	A	-
HCM 95th %tile Q(veh)	1.7	0	-	0	-

Intersection	
Int Delay, s/veh	4.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	3	18	8	31	29	26	10	109	20	13	60	4
Future Vol, veh/h	3	18	8	31	29	26	10	109	20	13	60	4
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	4	22	10	38	36	32	12	135	25	16	74	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	315	293	77	297	283	148	79	0	0	160	0	0
Stage 1	109	109	-	172	172	-	-	-	-	-	-	-
Stage 2	206	184	-	125	111	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	636	616	981	653	624	896	1513	-	-	1413	-	-
Stage 1	894	803	-	828	755	-	-	-	-	-	-	-
Stage 2	794	746	-	877	802	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	576	603	981	618	611	896	1513	-	-	1413	-	-
Mov Cap-2 Maneuver	576	603	-	618	611	-	-	-	-	-	-	-
Stage 1	886	793	-	821	748	-	-	-	-	-	-	-
Stage 2	722	739	-	834	792	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.7	11.3	0.5	1.3
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1513	-	-	671	679	1413	-	-
HCM Lane V/C Ratio	0.008	-	-	0.053	0.156	0.011	-	-
HCM Control Delay (s)	7.4	0	-	10.7	11.3	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.6	0	-	-

Intersection	
Int Delay, s/veh	6.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	10	48	65	11	66	36	518	25	20	178	9
Future Vol, veh/h	16	10	48	65	11	66	36	518	25	20	178	9
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	-	-	-	-	-	-	370	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	20	12	59	80	14	81	44	640	31	25	220	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	691	1035	116	910	1025	336	231	0	0	671	0	0
Stage 1	276	276	-	744	744	-	-	-	-	-	-	-
Stage 2	415	759	-	166	281	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	329	229	911	228	232	657	1327	-	-	909	-	-
Stage 1	704	678	-	370	417	-	-	-	-	-	-	-
Stage 2	583	411	-	817	675	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	262	215	911	194	218	657	1327	-	-	909	-	-
Mov Cap-2 Maneuver	262	215	-	194	218	-	-	-	-	-	-	-
Stage 1	681	659	-	358	403	-	-	-	-	-	-	-
Stage 2	477	397	-	729	656	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.7	34.3	0.5	0.9
HCM LOS	B	D		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1327	-	-	462	292	909	-	-
HCM Lane V/C Ratio	0.033	-	-	0.198	0.6	0.027	-	-
HCM Control Delay (s)	7.8	-	-	14.7	34.3	9.1	-	-
HCM Lane LOS	A	-	-	B	D	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.7	3.6	0.1	-	-

Intersection	
Int Delay, s/veh	3.7

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	689	241	8	400	116	6
Future Vol, veh/h	689	241	8	400	116	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	200	500	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	766	268	9	444	129	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	766	0	1006	383
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	240	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	0	843	-	238	615
Stage 1	-	0	-	-	419	-
Stage 2	-	0	-	-	777	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	843	-	235	615
Mov Cap-2 Maneuver	-	-	-	-	235	-
Stage 1	-	-	-	-	419	-
Stage 2	-	-	-	-	768	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	36.2
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	235	615	-	843	-
HCM Lane V/C Ratio	0.548	0.011	-	0.011	-
HCM Control Delay (s)	37.5	10.9	-	9.3	-
HCM Lane LOS	E	B	-	A	-
HCM 95th %tile Q(veh)	3	0	-	0	-

Intersection	
Int Delay, s/veh	4.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	8	29	10	48	36	28	14	116	45	53	183	10
Future Vol, veh/h	8	29	10	48	36	28	14	116	45	53	183	10
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	8	30	10	49	37	29	14	120	46	55	189	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	508	498	194	495	480	143	199	0	0	166	0	0
Stage 1	304	304	-	171	171	-	-	-	-	-	-	-
Stage 2	204	194	-	324	309	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	477	475	850	487	487	907	1379	-	-	1418	-	-
Stage 1	708	665	-	833	759	-	-	-	-	-	-	-
Stage 2	800	742	-	690	661	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	415	449	850	438	460	907	1379	-	-	1418	-	-
Mov Cap-2 Maneuver	415	449	-	438	460	-	-	-	-	-	-	-
Stage 1	700	636	-	824	751	-	-	-	-	-	-	-
Stage 2	728	734	-	621	632	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.1	14.1	0.6	1.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1379	-	-	491	512	1418	-	-
HCM Lane V/C Ratio	0.01	-	-	0.099	0.226	0.039	-	-
HCM Control Delay (s)	7.6	0	-	13.1	14.1	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.3	0.9	0.1	-	-

Intersection	
Int Delay, s/veh	5.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	9	14	26	36	15	34	90	346	33	76	693	10
Future Vol, veh/h	9	14	26	36	15	34	90	346	33	76	693	10
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	-	-	-	-	-	-	370	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	10	15	28	38	16	36	96	368	35	81	737	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1289	1500	374	1116	1488	202	748	0	0	403	0	0
Stage 1	905	905	-	578	578	-	-	-	-	-	-	-
Stage 2	384	595	-	538	910	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.52	6.52	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.51	4.01	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	122	122	626	164	124	808	863	-	-	1159	-	-
Stage 1	300	356	-	471	502	-	-	-	-	-	-	-
Stage 2	613	493	-	497	354	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	89	101	626	121	103	808	863	-	-	1159	-	-
Mov Cap-2 Maneuver	89	101	-	121	103	-	-	-	-	-	-	-
Stage 1	267	331	-	419	446	-	-	-	-	-	-	-
Stage 2	502	438	-	422	329	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	34.3	45.7	1.9	0.8
HCM LOS	D	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	863	-	-	174	175	1159	-	-
HCM Lane V/C Ratio	0.111	-	-	0.3	0.517	0.07	-	-
HCM Control Delay (s)	9.7	-	-	34.3	45.7	8.3	-	-
HCM Lane LOS	A	-	-	D	E	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	1.2	2.6	0.2	-	-

Appendix D
Future Plus Project Conditions
LOS Calculations

Intersection	
Int Delay, s/veh	3

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	208	42	6	598	136	5
Future Vol, veh/h	208	42	6	598	136	5
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	200	500	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	257	52	7	738	168	6

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	257	0	640	129
Stage 1	-	-	-	-	257	-
Stage 2	-	-	-	-	383	-
Critical Hdwy	-	-	4.16	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	-	-	2.23	-	3.53	3.33
Pot Cap-1 Maneuver	-	0	1298	-	406	894
Stage 1	-	0	-	-	759	-
Stage 2	-	0	-	-	656	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	1298	-	404	894
Mov Cap-2 Maneuver	-	-	-	-	404	-
Stage 1	-	-	-	-	759	-
Stage 2	-	-	-	-	653	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.1	19.7
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	404	894	-	1298	-
HCM Lane V/C Ratio	0.416	0.007	-	0.006	-
HCM Control Delay (s)	20.1	9.1	-	7.8	-
HCM Lane LOS	C	A	-	A	-
HCM 95th %tile Q(veh)	2	0	-	0	-

Intersection	
Int Delay, s/veh	5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	3	19	8	43	31	38	10	109	23	17	60	4
Future Vol, veh/h	3	19	8	43	31	38	10	109	23	17	60	4
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	4	23	10	53	38	47	12	135	28	21	74	5

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	335	306	77	308	294	149	79	0	0	163	0	0
Stage 1	119	119	-	173	173	-	-	-	-	-	-	-
Stage 2	216	187	-	135	121	-	-	-	-	-	-	-
Critical Hdwy	7.13	6.53	6.23	7.13	6.53	6.23	4.13	-	-	4.13	-	-
Critical Hdwy Stg 1	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.13	5.53	-	6.13	5.53	-	-	-	-	-	-	-
Follow-up Hdwy	3.527	4.027	3.327	3.527	4.027	3.327	2.227	-	-	2.227	-	-
Pot Cap-1 Maneuver	617	606	981	642	615	895	1513	-	-	1410	-	-
Stage 1	883	795	-	827	754	-	-	-	-	-	-	-
Stage 2	784	743	-	866	794	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	545	591	981	605	600	895	1513	-	-	1410	-	-
Mov Cap-2 Maneuver	545	591	-	605	600	-	-	-	-	-	-	-
Stage 1	875	782	-	820	747	-	-	-	-	-	-	-
Stage 2	698	736	-	818	781	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	10.8	11.7	0.5	1.6
HCM LOS	B	B		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1513	-	-	655	678	1410	-	-
HCM Lane V/C Ratio	0.008	-	-	0.057	0.204	0.015	-	-
HCM Control Delay (s)	7.4	0	-	10.8	11.7	7.6	0	-
HCM Lane LOS	A	A	-	B	B	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.2	0.8	0	-	-

Intersection	
Int Delay, s/veh	1.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	67	84	1	4	13
Future Vol, veh/h	4	67	84	1	4	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	5	83	104	1	5	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	105	0	-	0	198	105
Stage 1	-	-	-	-	105	-
Stage 2	-	-	-	-	93	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1480	-	-	-	788	947
Stage 1	-	-	-	-	917	-
Stage 2	-	-	-	-	928	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1480	-	-	-	785	947
Mov Cap-2 Maneuver	-	-	-	-	785	-
Stage 1	-	-	-	-	913	-
Stage 2	-	-	-	-	928	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	9.1
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1480	-	-	-	903
HCM Lane V/C Ratio	0.003	-	-	-	0.023
HCM Control Delay (s)	7.4	0	-	-	9.1
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	4	67	72	2	5	13
Future Vol, veh/h	4	67	72	2	5	13
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3
Mvmt Flow	5	83	89	2	6	16

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	91	0	-	0	183	90
Stage 1	-	-	-	-	90	-
Stage 2	-	-	-	-	93	-
Critical Hdwy	4.13	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.227	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1498	-	-	-	804	965
Stage 1	-	-	-	-	931	-
Stage 2	-	-	-	-	928	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1498	-	-	-	802	965
Mov Cap-2 Maneuver	-	-	-	-	802	-
Stage 1	-	-	-	-	928	-
Stage 2	-	-	-	-	928	-

Approach	EB	WB	SB
HCM Control Delay, s	0.4	0	9
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1498	-	-	-	913
HCM Lane V/C Ratio	0.003	-	-	-	0.024
HCM Control Delay (s)	7.4	0	-	-	9
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0.1

Intersection	
Int Delay, s/veh	6.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	12	55	65	12	66	38	518	25	20	178	9
Future Vol, veh/h	16	12	55	65	12	66	38	518	25	20	178	9
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	-	-	-	-	-	-	370	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	81	81	81	81	81	81	81	81	81	81	81	81
Heavy Vehicles, %	3	3	3	3	3	3	3	3	3	3	3	3
Mvmt Flow	20	15	68	80	15	81	47	640	31	25	220	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	698	1041	116	918	1031	336	231	0	0	671	0	0
Stage 1	276	276	-	750	750	-	-	-	-	-	-	-
Stage 2	422	765	-	168	281	-	-	-	-	-	-	-
Critical Hdwy	7.56	6.56	6.96	7.56	6.56	6.96	4.16	-	-	4.16	-	-
Critical Hdwy Stg 1	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.56	5.56	-	6.56	5.56	-	-	-	-	-	-	-
Follow-up Hdwy	3.53	4.03	3.33	3.53	4.03	3.33	2.23	-	-	2.23	-	-
Pot Cap-1 Maneuver	325	227	911	225	230	657	1327	-	-	909	-	-
Stage 1	704	678	-	367	415	-	-	-	-	-	-	-
Stage 2	577	408	-	814	675	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	257	213	911	188	216	657	1327	-	-	909	-	-
Mov Cap-2 Maneuver	257	213	-	188	216	-	-	-	-	-	-	-
Stage 1	679	659	-	354	400	-	-	-	-	-	-	-
Stage 2	469	394	-	716	656	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	14.9	36.2	0.5	0.9
HCM LOS	B	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1327	-	-	464	285	909	-	-
HCM Lane V/C Ratio	0.035	-	-	0.221	0.619	0.027	-	-
HCM Control Delay (s)	7.8	-	-	14.9	36.2	9.1	-	-
HCM Lane LOS	A	-	-	B	E	A	-	-
HCM 95th %tile Q(veh)	0.1	-	-	0.8	3.8	0.1	-	-

Intersection	
Int Delay, s/veh	4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	689	254	8	400	124	6
Future Vol, veh/h	689	254	8	400	124	6
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	Free	-	None	-	None
Storage Length	-	200	500	-	0	0
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	90	90	90	90	90	90
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	766	282	9	444	138	7

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	-	766	0	1006	383
Stage 1	-	-	-	-	766	-
Stage 2	-	-	-	-	240	-
Critical Hdwy	-	-	4.14	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	2.22	-	3.52	3.32
Pot Cap-1 Maneuver	-	0	843	-	238	615
Stage 1	-	0	-	-	419	-
Stage 2	-	0	-	-	777	-
Platoon blocked, %	-			-		
Mov Cap-1 Maneuver	-	-	843	-	235	615
Mov Cap-2 Maneuver	-	-	-	-	235	-
Stage 1	-	-	-	-	419	-
Stage 2	-	-	-	-	768	-

Approach	EB	WB	NB
HCM Control Delay, s	0	0.2	38.7
HCM LOS			E

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	WBL	WBT
Capacity (veh/h)	235	615	-	843	-
HCM Lane V/C Ratio	0.586	0.011	-	0.011	-
HCM Control Delay (s)	40	10.9	-	9.3	-
HCM Lane LOS	E	B	-	A	-
HCM 95th %tile Q(veh)	3.3	0	-	0	-

Intersection	
Int Delay, s/veh	5.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⇕			⇕			⇕			⇕	
Traffic Vol, veh/h	8	31	10	56	37	36	14	116	58	66	183	10
Future Vol, veh/h	8	31	10	56	37	36	14	116	58	66	183	10
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	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	97	97	97	97	97	97	97	97	97	97	97	97
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	8	32	10	58	38	37	14	120	60	68	189	10

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	546	538	194	529	513	150	199	0	0	180	0	0
Stage 1	330	330	-	178	178	-	-	-	-	-	-	-
Stage 2	216	208	-	351	335	-	-	-	-	-	-	-
Critical Hdwy	7.11	6.51	6.21	7.11	6.51	6.21	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.11	5.51	-	6.11	5.51	-	-	-	-	-	-	-
Follow-up Hdwy	3.509	4.009	3.309	3.509	4.009	3.309	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	450	451	850	462	466	899	1379	-	-	1402	-	-
Stage 1	685	648	-	826	754	-	-	-	-	-	-	-
Stage 2	789	732	-	668	644	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	383	422	850	409	436	899	1379	-	-	1402	-	-
Mov Cap-2 Maneuver	383	422	-	409	436	-	-	-	-	-	-	-
Stage 1	677	612	-	817	746	-	-	-	-	-	-	-
Stage 2	710	724	-	591	609	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	13.7	15	0.6	2
HCM LOS	B	C		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1379	-	-	462	493	1402	-	-
HCM Lane V/C Ratio	0.01	-	-	0.109	0.27	0.049	-	-
HCM Control Delay (s)	7.6	0	-	13.7	15	7.7	0	-
HCM Lane LOS	A	A	-	B	C	A	A	-
HCM 95th %tile Q(veh)	0	-	-	0.4	1.1	0.2	-	-

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	102	122	5	2	9
Future Vol, veh/h	14	102	122	5	2	9
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	111	133	5	2	10

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	138	0	-	0	277	136
Stage 1	-	-	-	-	136	-
Stage 2	-	-	-	-	141	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1446	-	-	-	713	913
Stage 1	-	-	-	-	890	-
Stage 2	-	-	-	-	886	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1446	-	-	-	705	913
Mov Cap-2 Maneuver	-	-	-	-	705	-
Stage 1	-	-	-	-	880	-
Stage 2	-	-	-	-	886	-

Approach	EB	WB	SB
HCM Control Delay, s	0.9	0	9.2
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1446	-	-	-	867
HCM Lane V/C Ratio	0.011	-	-	-	0.014
HCM Control Delay (s)	7.5	0	-	-	9.2
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	14	90	119	5	3	8
Future Vol, veh/h	14	90	119	5	3	8
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	15	98	129	5	3	9

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	134	0	-	0	260	132
Stage 1	-	-	-	-	132	-
Stage 2	-	-	-	-	128	-
Critical Hdwy	4.12	-	-	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	2.218	-	-	-	3.518	3.318
Pot Cap-1 Maneuver	1451	-	-	-	729	917
Stage 1	-	-	-	-	894	-
Stage 2	-	-	-	-	898	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1451	-	-	-	721	917
Mov Cap-2 Maneuver	-	-	-	-	721	-
Stage 1	-	-	-	-	884	-
Stage 2	-	-	-	-	898	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1451	-	-	-	854
HCM Lane V/C Ratio	0.01	-	-	-	0.014
HCM Control Delay (s)	7.5	0	-	-	9.3
HCM Lane LOS	A	A	-	-	A
HCM 95th %tile Q(veh)	0	-	-	-	0

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	9	15	30	36	17	34	98	346	33	76	693	10
Future Vol, veh/h	9	15	30	36	17	34	98	346	33	76	693	10
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	-	-	-	-	-	-	370	-	-	250	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	94	94	94	94	94	94	94	94	94
Heavy Vehicles, %	1	1	1	1	1	1	1	1	1	1	1	1
Mvmt Flow	10	16	32	38	18	36	104	368	35	81	737	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1306	1516	374	1133	1504	202	748	0	0	403	0	0
Stage 1	905	905	-	594	594	-	-	-	-	-	-	-
Stage 2	401	611	-	539	910	-	-	-	-	-	-	-
Critical Hdwy	7.52	6.52	6.92	7.52	6.52	6.92	4.12	-	-	4.12	-	-
Critical Hdwy Stg 1	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.52	5.52	-	6.52	5.52	-	-	-	-	-	-	-
Follow-up Hdwy	3.51	4.01	3.31	3.51	4.01	3.31	2.21	-	-	2.21	-	-
Pot Cap-1 Maneuver	119	119	626	159	121	808	863	-	-	1159	-	-
Stage 1	300	356	-	461	494	-	-	-	-	-	-	-
Stage 2	599	485	-	497	354	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	84	97	626	114	99	808	863	-	-	1159	-	-
Mov Cap-2 Maneuver	84	97	-	114	99	-	-	-	-	-	-	-
Stage 1	264	331	-	405	434	-	-	-	-	-	-	-
Stage 2	482	426	-	418	329	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	35.6	52.1	2	0.8
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	863	-	-	174	164	1159	-	-
HCM Lane V/C Ratio	0.121	-	-	0.33	0.564	0.07	-	-
HCM Control Delay (s)	9.7	-	-	35.6	52.1	8.3	-	-
HCM Lane LOS	A	-	-	E	F	A	-	-
HCM 95th %tile Q(veh)	0.4	-	-	1.4	2.9	0.2	-	-

Appendix E
Intersection Control Criteria

Peak-Hour Factor

Refer to the peak-hour factor discussion in this chapter under Section II, Urban Streets, Required Input Data and Estimated Values.

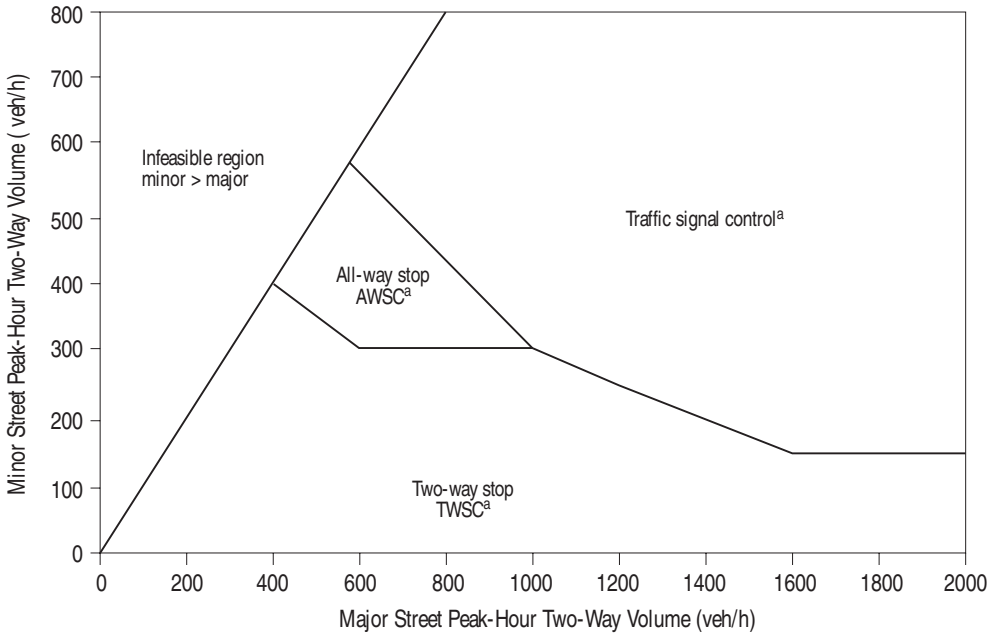
Length of Analysis Period

Refer to the length of analysis period discussion in this chapter under Section II, Urban Streets, Required Input Data and Estimated Values.

Intersection Control Type

The intersection control type for an existing facility is known, by definition. In the case of future facilities, the likely intersection control types can be forecast using Exhibit 10-15 and the forecast two-way peak-hour volumes on the major and minor streets. Note that this exhibit is based on a set of specific assumptions, which are identified in a footnote.

EXHIBIT 10-15. INTERSECTION CONTROL TYPE AND PEAK-HOUR VOLUMES
(SEE FOOTNOTE FOR ASSUMED VALUES)



Notes
a. Roundabouts may be appropriate within portion of these ranges.
Source: Adapted from *Traffic Control Devices Handbook* (*8,* pp. 4–18) - peak-direction, 8-h warrants converted to two-way peak-hour volumes assuming ADT equals twice the 8-h volume and peak hour is 10 percent of daily. Two-way volumes assumed to be 150 percent of peak-direction volume.

Cycle Length

Greater accuracy can be achieved when using the computational methodology if the cycle length for each intersection along the urban street is known or can be calculated on the basis of intersection-specific data. In the absence of a known cycle length or intersection-specific data, the cycle lengths for signalized intersections along an urban street can be estimated using the default values in Exhibit 10-16.

EXHIBIT 10-16. DEFAULT CYCLE LENGTHS BY AREA TYPE

Area Type	Default (s)
CBD	70
Other	100

Option:

08 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, the traffic volumes in the 56 percent columns in Table 4C-1 may be used in place of the 80 percent columns.

Section 4C.03 Warrant 2, Four-Hour Vehicular Volume

Support:

01 The Four-Hour Vehicular Volume signal warrant conditions are intended to be applied where the volume of intersecting traffic is the principal reason to consider installing a traffic control signal.

Standard:

02 **The need for a traffic control signal shall be considered if an engineering study finds that, for each of any 4 hours of an average day, the plotted points representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) all fall above the applicable curve in Figure 4C-1 for the existing combination of approach lanes. On the minor street, the higher volume shall not be required to be on the same approach during each of these 4 hours.**

Option:

03 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-2 may be used in place of Figure 4C-1.

Section 4C.04 Warrant 3, Peak Hour

Support:

01 The Peak Hour signal warrant is intended for use at a location where traffic conditions are such that for a minimum of 1 hour of an average day, the minor-street traffic suffers undue delay when entering or crossing the major street.

Standard:

02 **This signal warrant shall be applied only in unusual cases, such as office complexes, manufacturing plants, industrial complexes, or high-occupancy vehicle facilities that attract or discharge large numbers of vehicles over a short time.**

03 **The need for a traffic control signal shall be considered if an engineering study finds that the criteria in either of the following two categories are met:**

A. If all three of the following conditions exist for the same 1 hour (any four consecutive 15-minute periods) of an average day:

1. The total stopped time delay experienced by the traffic on one minor-street approach (one direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a one-lane approach or 5 vehicle-hours for a two-lane approach; and

2. The volume on the same minor-street approach (one direction only) equals or exceeds 100 vehicles per hour for one moving lane of traffic or 150 vehicles per hour for two moving lanes; and

3. The total entering volume serviced during the hour equals or exceeds 650 vehicles per hour for intersections with three approaches or 800 vehicles per hour for intersections with four or more approaches.

B. The plotted point representing the vehicles per hour on the major street (total of both approaches) and the corresponding vehicles per hour on the higher-volume minor-street approach (one direction only) for 1 hour (any four consecutive 15-minute periods) of an average day falls above the applicable curve in Figure 4C-3 for the existing combination of approach lanes.

Option:

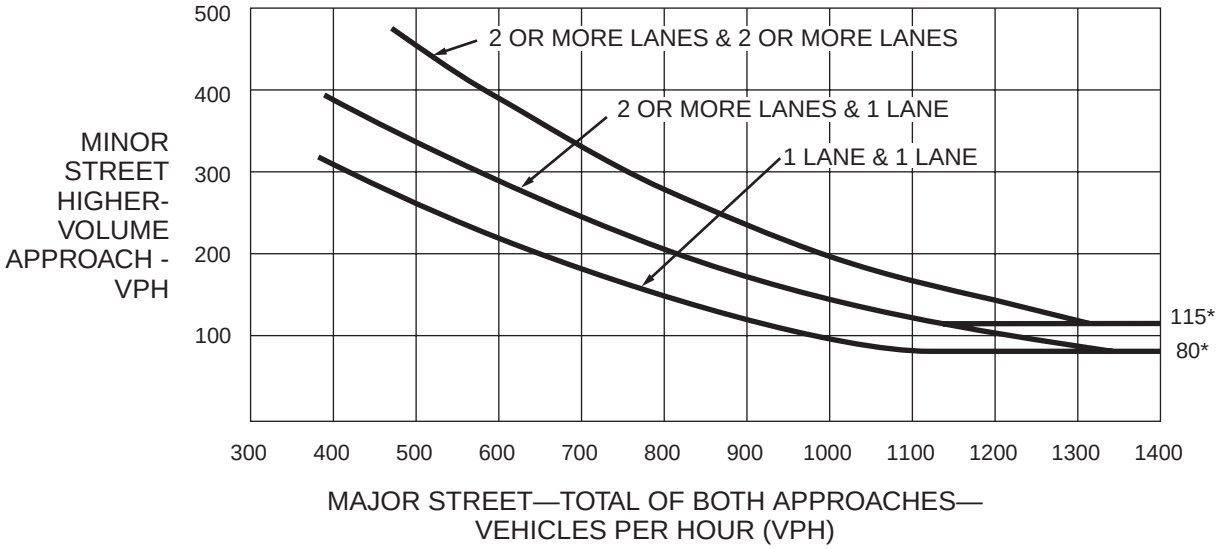
04 If the posted or statutory speed limit or the 85th-percentile speed on the major street exceeds 40 mph, or if the intersection lies within the built-up area of an isolated community having a population of less than 10,000, Figure 4C-4 may be used in place of Figure 4C-3 to evaluate the criteria in the second category of the Standard.

05 If this warrant is the only warrant met and a traffic control signal is justified by an engineering study, the traffic control signal may be operated in the flashing mode during the hours that the volume criteria of this warrant are not met.

Guidance:

06 *If this warrant is the only warrant met and a traffic control signal is justified by an engineering study, the traffic control signal should be traffic-actuated.*

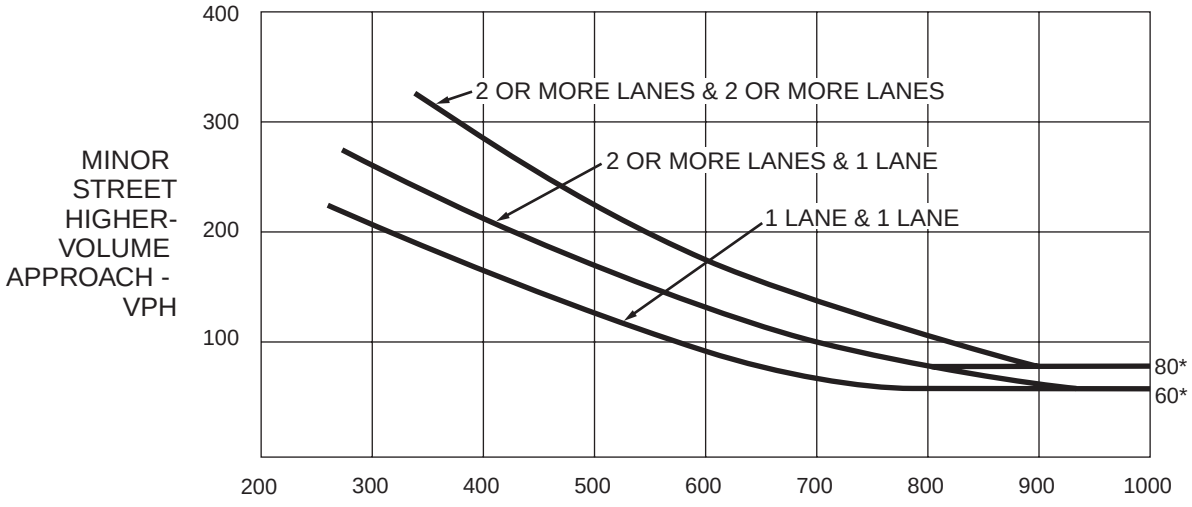
Figure 4C-1. Warrant 2, Four-Hour Vehicular Volume



*Note: 115 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 80 vph applies as the lower threshold volume for a minor-street approach with one lane.

Figure 4C-2. Warrant 2, Four-Hour Vehicular Volume (70% Factor)

(COMMUNITY LESS THAN 10,000 POPULATION OR ABOVE 40 MPH ON MAJOR STREET)



*Note: 80 vph applies as the lower threshold volume for a minor-street approach with two or more lanes and 60 vph applies as the lower threshold volume for a minor-street approach with one lane.

07/28/2021 Planning Commission

Late Material

Item 13C

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

MEMORANDUM
Planning Commission Meeting of July 28, 2021

ITEM 13.C

TO: Planning Commission

FROM: Heather Ferris
Planning Manager

DATE: July 27, 2021

SUBJECT: SUB-2021-0211 For Possible Action: Discussion and possible action regarding a request for a Tentative Subdivision Map for a development known as East Nye Lane to create 61 single family residential lots on a 17.0+/- acre parcel zoned Mobilehome 12,000 (MH12), located east of Otha Street and west of Debbie Way between E Nye Lane and College Parkway, APN 008-192-71.

Since the release of the packet staff has received comments from the Interim Airport Manager requesting a modification to condition 21 as well as a new condition. Additionally, in condition 18, staff would like to take this opportunity to specify the screening required along the north side of the subdivision. New wording appears bolded and underlined. Proposed deleted language appears with a strikethrough.

18. Screening and Buffering of Adjoining Development. Provisions shall be made to assure adequate screening and buffering of existing and potential developments adjoining the proposed common open space development. **Screening along East College Parkway shall consist of a sound wall consistent with the adjacent sound wall.**

21. As part of the site improvement permit, the applicant must provide a landscape and irrigation plan demonstrating compliance with the applicable sections of the Development Standards in Division 3. **Due to the proximity to the Carson City Airport, the types of trees allowed to be planted on-site shall be limited to those with a mature height of 35 feet or less. This limitation shall be included in the CC&Rs.**

31. Prior to recordation of the final map, the applicant shall execute and record an avigation and noise easement granting the Carson City Airport and Airport Authority the right of overflight in the airspace above and in the vicinity of the subject property and recognizing the right to create noise or other effects associated with the lawful operation of aircraft in such airspace. The applicant shall coordinate with the Airport Authority regarding the specific language in the document.

Staff recommends the following motion:

""I move to recommend approval of Tentative Subdivision Map SUB-2021-0211 based on the ability to make the required findings and subject to the conditions of approval and amended in staff's memo dated July 27, 2021."

①

TO: CARSON City
PLANNING Commission

confidential written public comment from James ~~Gothy~~, Landowner adjacent to the proposed subdivision, East of Otka and west of Debbie off of East Nye Ln.

I am opposed to the zoning change from 12,000 SQ. Ft. lots down to 8,000. Sq. ft. Lots.

James ~~Gothy~~
3540 E. Nye Ln.

As you will read, I am as informed as anyone involved with the history and many problems with this property in respect to developing it into a subdivision.

There are many safety issues and ~~sucess~~ success prospects for this property, that I will point out and expound upon, none of them good news, for all involved except the sub-contractors.

(2)

Issues and descriptions

1.) The first and foremost issue is the zoning change request from mobile home 12,000 (MH12) down to lot size 8,477 sq. ft.

MH12 has always been the zoning in this sub-division (Mountain Park) and should remain so due to:

- congestion; sixty + more cars in and out every day.
- at current levels a dedicated school bus stop infrastructure is not needed in current status of the street, E. Nye

With rezoning will come the need to renovate E. Nye Ln. between Airport Rd and College Pkwy.

Even with out a zoning change, E. Nye Ln. will have to be up-graded and brought into the 21st century!

2.) The fact that this property is 100' from the carson city airport runway is enough reason not to approve it.

The past of the runway next to the proposed north entrance is the touch down and take off zone, the riskiest and noisiest part of the runway.

3.) (FINANCIAL) Any project involving This property will have ~~high~~ development costs due to:

A.) city codes of paved streets and sidewalks, also drainage, sewer, water, gas and direct buried electric.

B.) ~~Another large expense~~ will be ~~to seperate~~ E. Nye Ln. to handle ~~40-60 new autos~~ in and out every day.

C.) at airport Rd and E. Nye Ln. it might require a traffic light. also at that intersection the commercial buildings housing the mini-market and the head shop ~~have next to no parking~~ and require backing out into the street to leave. The delivery trucks arrive everyday for the mini-market and have absolutely no room to unload so they park in the North traffic lane forcing west bound traffic into the on coming traffic.

another 60+ cars every morning into that situation? give me a break!

The traffic can't be pushed up to the North exit due to

(4)

fact you will need another traffic light up there risking accidents as people travel 40-60 M.P.H. through there 100' from the runway.

4.) 60 new Homesites, of 43 will come with 60+ new school children. They will need dedicated infrastructure to handle them loading and unloading buses on the North side of E. Nye Rd. Buses must travel West on E. Nye Rd, opposite of what they do now.

5.) A seven or eight foot concrete wall will need to be built around the entire project especially along EAST college Pkwy. and the airport runway.

6.) Success and sales prospects into this old neighborhood zoned for trailers are poor at best. How much will people pay for Home-sites and send their kids to what school?

I dont see even a break-even on this development. Who is going to loose the money? the developer? the seller? IS the city going to pony up the E. Nye Rd. renovation and traffic signal? What about the mini market no parking problem FOR customers and deliveries?

(5)

Who is going to do all this work and take this risk? ~~Due diligence is needed here by all parties~~

Will the Carson City airport ever be more than what it is, increasing its traffic with more jet engines?

I'm sorry to all involved that this beautiful 17 acres is not viable for much of any development. Maybe the owners would like to donate it to the city for what ever? Abandon the north end and make a walking park out of it? Develope it and give the lots away at a discount to bring buyers? E. Nye LN. still needs to be re-done. It's a no-win situation investment-wise. So Sad.

James Hatch

(6)

So the planning commission members will know what happend to the cost basis as this property changed hands from Martha Westover to the current owners, examine the "parcel details" sheet included.

2-7-07 - Martha to Peter D + Claire T. Harrison for #3 mil.
Then a "middle man" (Peter D?) passed it to ALAN DAON LLC. for #4.45 mil.?

#1½ mil was taken out raising the cost basis now to #4.45 mil.

This is what really kills any development unless someone or two want to take a loss?
any volunteers?

2021

Parcel Details for 00819271

Assessor Descriptions

Assessor Descriptions	Subdivision Name	Section	Township	Range	Block & Lot
Created from split of Parcel # 008-192-68,Primary new parcel is Parcel # 008-192-70	MOUNTAIN PARK #11	03	T15N	R20E	
PARCEL B, PM 2631		03	T15N	R20E	

No Personal Exemptions

Billing Fiscal Year (2020 - 2021)

Installment	Date Due	Date Paid	Tax Billed	Cost Billed	Penalty/Interest	Total Due	Amount Paid	Total Unpaid
1	8/17/2020	8/20/2020	$3,102.52	$0.00	$0.00	$3,102.52	$3,102.52	$0.00
2	10/5/2020	10/14/2020	$3,102.17	$0.00	$0.00	$3,102.17	$3,102.17	$0.00
3	1/4/2021	1/15/2021	$3,102.17	$0.00	$0.00	$3,102.17	$3,102.17	$0.00
4	3/1/2021	3/12/2021	$3,102.17	$0.00	$0.00	$3,102.17	$3,102.17	$0.00
Total			**$12,409.03**	**$0.00**	**$0.00**	**$12,409.03**	**$12,409.03**	**$0.00**

Payment History

Fiscal Year	Total Due	Total Paid	Amount Unpaid	Date Paid
(2020 - 2021)	$12,409.03	$12,409.03	$0.00	3/12/2021
(2019 - 2020)	$11,977.83	$11,977.83	$0.00	3/5/2020
(2018 - 2019)	$11,429.24	$11,429.24	$0.00	3/13/2019

Show 11 More

Related Names

CURRENT OWNER FOR 2022 (2022 - 2023)		OWNER FOR 2020 (2020 - 2021)	
Name	CUBIX CORPORATION,	Name	CUBIX CORPORATION,
Mailing Address	2800 LOCKHEED WY CARSON CITY, NV, 89706-0000	Mailing Address	2800 LOCKHEED WY CARSON CITY, NV, 89706-0000
Status	Current	Status	Current
Account		Account	

No Structure Information

Sales History

DISCLAIMER: SOME DOCUMENTS MAY NOT BE SHOWN

Year	Document #	Document Type	Sale Date	Sold By	Sold To	Price
2007	364249	GRANT BARGAIN SALE DEED	2/7/2007	ASCEND 2006 LLC	ALANDDON LLC	$4,468,000
2007	364247	GRANT BARGAIN SALE DEED	2/7/2007	MARTHA WESTOVER	PETER D & CLAIRE J HARRISON	$3,000,000

i/2021

Parcel Details for 00819270

PARCEL ID 008-192-70

Assessor Descriptions

Assessor Descriptions	Subdivision Name	Section	Township	Range	Block & Lot
Created from split of parcel # 008-192-09,008-192-68,98-99,**********,Created from split of Parcel # 008-192-68,A PORTION OF THE EAST 1/2 OF THE SOUTHWEST 1/4 OF,THE SOUTHWEST 1/4 OF SECTION 3, THOWNSHIP 15,NORTH, RANGE 20 EAST, M.D.M., MORE PARTICULARLY,DESCRIBED AS FOLLOWS: PARCEL A OF PARCEL MAP NO.,2631 FIR MARTHA WESTOVER FILED IN THE OFFICE OF,THE CARSON CITY RECORDER, STATE OF NEVADA, ON,JANUARY 25, 2007 IN BOOK 10 OF MAPS AT PAGE 2631,AS FILE NO. 363717, OFFICIAL RECORDS.		03	T15N	R20E	
PARCEL A, PM 2631		03	T15N	R20E	

No Personal Exemptions

Billing Fiscal Year (2020 - 2021)

Installment	Date Due	Date Paid	Tax Billed	Cost Billed	Penalty/Interest	Total Due	Amount Paid	Total Unpaid
1	8/17/2020	9/2/2020	$783.59	$0.00	$31.34	$814.93	$814.93	$0.00
2	10/5/2020	3/15/2021	$783.23	$0.00	$30.33	$813.56	$813.56	$0.00
3	1/4/2021	3/26/2021	$783.23	$0.00	$77.07	$860.30	$860.30	$0.00
4	3/1/2021	4/26/2021	$783.23	$2.00	$139.48	$924.71	$924.71	$0.00
Total			**$3,133.28**	**$2.00**	**$278.22**	**$3,413.50**	**$3,413.50**	**$0.00**

Payment History

	Fiscal Year	Total Due	Total Paid	Amount Unpaid	Date Paid
⊕	(2020 - 2021)	$3,413.50	$3,413.50	$0.00	4/26/2021
⊕	(2019 - 2020)	$3,192.28	$3,192.28	$0.00	4/15/2020
⊕	(2018 - 2019)	$3,087.08	$3,087.08	$0.00	4/26/2019

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Related Names

CURRENT OWNER FOR 2022 (2022 - 2023)		OWNER FOR 2020 (2020 - 2021)	
Name	CLEMENTINE TOPE FAMILY TRUST,	Name	CLEMENTINE TOPE FAMILY TRUST,
Mailing Address	LAURIE MAE TODD, TRUSTEE 3430 E NYE LN CARSON CITY, NV, 89706-0000	Mailing Address	LAURIE MAE TODD, TRUSTEE 3430 E NYE LN CARSON CITY, NV, 89706-0000
Status	Current	Status	Current
Account		Account	

⊕ Structure 1 of 2

(9)

East College Parkway
Arrowhead Drive
East College Parkway
Arrowhead Drive

From: Delane Gilbert
To: Planning Department
Subject: SUB-2021-0211 (MH12)
Date: Tuesday, July 27, 2021 12:07:00 PM

Hello my name is Delane Gilbert and I own property at 3230 Banjo Circle which is right off of Debbie. I DO NOT AGREE with this Tentative Subdivision known as East Nye Lane. I have owned my property at 3230 Banjo Circle for many years now and have witnessed a deterioration of the surrounding properties . Now you want to do the same thing behind my property. I have on my street property that has people sleeping in trailers, running car repairs and other businesses out of there houses. One property has multiple cars that can be seen from Nye Lane and College Park Way. I have in the past have filed complaints against several property owners. The city makes them clean the property up but it never lasts and no continues follow up. Thank you in advanced for your time.
I have provided some pictures for your viewing.
Delane Gilbert