Los Alamos New Mexico, Road Safety Audit

Trinity Drive between 15th Street and Oppenheimer Drive

Prepared for:

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ch2m

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Table of Contents

Section Page

Appendices

A) FIELD MEETING AGENDA AND SIGN IN SHEET

B) WORKSHOP SUMMARY

C) TRAFFIC COUNT DATA
DECEMBER 11, 2014
MAY 22, 2015
OCTOBER 27, 2015

D) SIGNAL WARRANT REVIEW

E) ATOMIC CITY RT 1 ROUTE MAP

F) LAC TYPICAL SECTION CONCEPTS FOR TRINITY DRIVE AND 20TH STREET ATTACHED

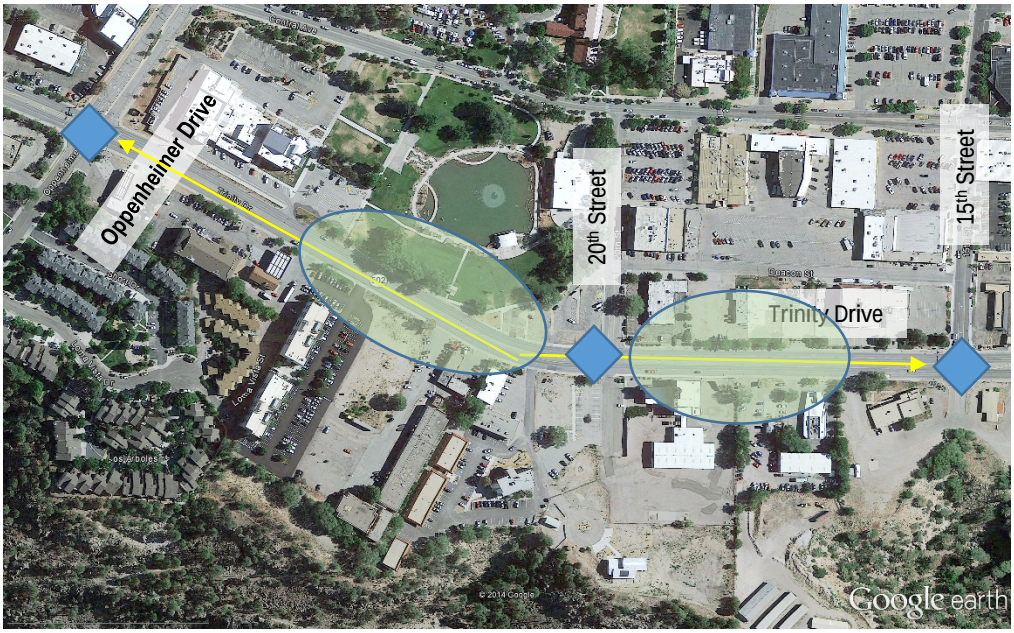
Road Safety Audit

Introduction

This Road Safety Audit (RSA) was initiated to address roadway safety issues in the study area with a primary emphasis on pedestrian safety and mobility, while also assessing the safety of other modes within the study area as they are interrelated. The study area is located in Los Alamos, NM along Trinity Drive (NM 502). The study limits include Trinity Drive between Oppenheimer Drive and 15th Street and includes the mid-block regions along Trinity Drive between Oppenheimer Drive and 15th Street. Ashley Pond is a community park that hosts public gatherings and entertainment events and is included in the study area. The park was recently upgraded with improvements to drainage, electrical service, pond/fountain, and sidewalk/pedestrian related enhancements.

A public dedication ceremony for the improvements was recently held at Ashley Pond to officially celebrate the new renovations and to re-open the public space. A public community building on the east side of Ashley Pond and the Los Alamos County (LAC) Justice Center west of Ashley Pond are also popular public facilities in the community.

EXHIBIT 1
VICINITY MAP OF THE STUDY AREA



Intersection Traffic/Pedestrian Count Location

Mid-block Pedestrian Count Location

Study Context

Existing Conditions

Trinity Drive (NM 502) through Los Alamos is a four- lane east-west principal arterial route with a continuous center left-turn lane, sidewalks and a curb and gutter section. The right-of-way width for NM 502/Trinity Drive is at least eighty feet and may be up to 100 feet. There is a horizontal curve on Trinity Drive located at Ashley Pond (20th Street). There are no shoulders on Trinity Drive within the study area. 20th Street is a collector street to the north. To the south, 20th Street dead ends into a parking lot for local businesses.

Street lighting along Trinity Drive is LED and is installed in a staggered layout along the corridor. There is not currently any lower level pedestrian focused sidewalk lighting in the study area.

Atomic City Transit (Route 1) provides free public bus service along Trinity Drive in the eastbound direction. Buses make a loop from Trinity Drive onto Central Avenue in the westbound direction. The bus headways (time between buses) are approximately 20 minutes during the weekday from 5:48 am to 7:08 pm. Bus stops are located along Trinity Drive in the eastbound direction at 15th Street, 20th Street and Oppenheimer Drive within the study area.

Businesses located on the south side of Trinity Drive include commercial land use such as motels, gas stations, an automobile service station, school administration facilities, a real estate office, and an adult day care center. There are residential developments located in the general area to the south of Trinity Drive at Oppenheimer Drive. The Los Alamos County (LAC) Justice Center is located along the north side of Trinity Drive adjacent to the west side of Ashley Pond.

Ashley Pond is an important community park and public gathering area that hosts special entertainment events regularly during the spring and summer months. During the summer there are weekly entertainment events on Friday nights. Public parking is located in designated parking lots west and southeast of Ashley Pond. Additional overflow parking during special events is located on the south side of Trinity Drive across from the Ashley Pond area.

Trinity Drive serves as a major access route for Los Alamos National Laboratory (LANL) traffic. On Trinity Drive, morning LANL traffic peak is in the westbound direction. For the pm or afternoon peak period, LANL traffic peaks in the eastbound direction as employees return home.

The intersection of Oppenheimer Drive and Trinity Drive at the west end of the study area is a signalized intersection. The intersection of 15th Street and Trinity Drive at the east end of the study area is also a signalized intersections. The intersection of Trinity Drive and 20th Street in the center of the study area is a two-way stop controlled intersection with stop control on 20th Street.

EXHIBIT 2

INTERSECTION OF 20TH STREET AND TRINITY DRIVE LOOKING EAST

Traffic Data Collection and Review

Planned Future Development – Effects on Traffic

Conversion efforts related to the Community Center to a Teen Center on the east side of Ashley Pond on 20th Street was occurring at the time of this study (May 2015). The Teen Center opened in the newly renovated community center during the fall of 2015. It is anticipated that traffic will increase in the area with the opening of the teen center. Also some teens are expected to ride the Atomic City bus (Route 1) which stops eastbound on the west side of 20th Street to depart and arrive at the Teen Center. Route 1 also stops at the High School and the Aquatic Center.

LAC proposes a reconstruction of 20th Street south of Trinity Drive for approximately 200 feet. The proposed typical section for the south leg of 20th Street includes a two lane roadway with curb and gutter, a north bound left-turn lane at the intersection, parking on the east side, and five to six foot wide sidewalks on both sides. A preliminary plan has been developed and is included for reference in the appendix.

The north leg of 20th Street at Trinity Drive was under construction at the time of the field review meeting in conjunction with the Teen Center renovations. This construction activity likely impacted the traffic operations temporarily until it was completed. Construction of this street segment was completed on October 9, 2015.

Traffic Flow Data

Traffic data were obtained from a combination of sources for use in this study. ADT data for Trinity Drive (NM 502) were obtained from the NMDOT traffic count database and is shown below in Table 1.

Table 1. Average Daily Traffic on Trinity Drive NM 502)
Milepost 0.7 to Milepost 1.72 (Junction with Oppenheimer Drive)

	Year 2013	Year 2012	Year 2011
Eastbound Direction	6705	6808	6830
Westbound Direction	6074	6167	6187
Total	12,779	12,975	13,017

Source: NMDOT Traffic Count Database

Intersection turning movement counts (with classifications), were collected for the study. Los Alamos County (LAC) furnished and deployed cameras for traffic data collection. The cameras were deployed on Thursday, December 11, 2014 at three intersections as follows:

- 20th Street and Trinity Drive (12-hour intersection turning movement counts from 6:00 am to 6:00 pm)
- 15th Street and Trinity Drive (9-hour intersection turning movement count from 6:00-9:00 am, 11:00 am-2:00 pm, and 3:00 – 6:00 pm)
- Oppenheimer Drive and Trinity Drive (9-hour intersection turning movement count from 6:00-9:00 am, 11:00 am-2:00 pm, and 3:00 - 6:00 pm)

Table 2. Peak Hour Intersection Turning Movement Counts

	AM Peak Period	Noon Peak Period	PM Peak Period
	Traffic Counts (Peak Hour)	Traffic Counts (Peak Hour)	Traffic Counts (Peak Hour)
Oppenheimer Drive/Trinity Drive	1286 7:30-8:30 am	1835 11:00 am to Noon	1778 4:30 – 5:30 pm
20th Street/ Trinity Drive	1798 11:00 am to noon		1815 Noon-1:00 pm

15th Street/ Trinity Drive	1109 7:30-8:30 am	1795 Noon – 1:00 pm	1826 4:30-5:30 pm

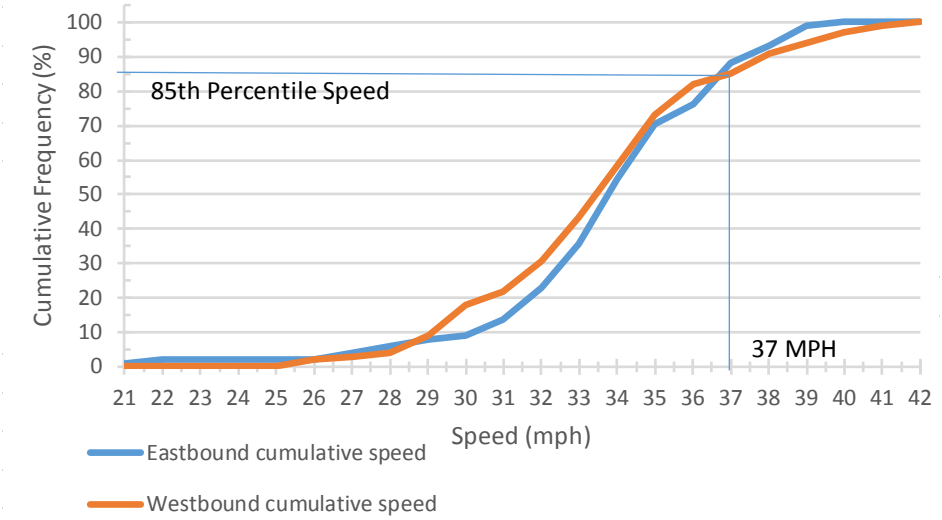
A majority of the southbound traffic (86%) at 20th Street and Trinity Drive is right turning traffic during the 11:00 am to 1:00 pm peak traffic period. With southbound left turning and southbound through movements, comprising a small percentage (14%) of the peak hour volume at the intersection. The peak hour right turning flow distribution was slightly higher at (88%).

Vehicular Traffic Speed Data

A spot speed study was conducted along Trinity Drive on Thursday, December 11, 2014. A sample of 100 vehicles in the eastbound direction and 100 vehicles in the westbound direction were recorded during the 10:00 am–11:00 am time period. The 85th percentile speeds are 37 mph for eastbound and westbound Trinity Drive. The speed limit on Trinity Drive within the study area is 35 mph.

EXHIBIT 3

SPOT SPEED STUDY RESULTS FOR TRINITY DR. (9:50 AM TO 10:50 AM)



Pedestrian and Bicycle Count Data

Pedestrian and bicycle counts were conducted for each of the three study area intersections concurrent with the vehicle turning movement counts. In addition, supplementary pedestrian counts crossing Trinity Drive were conducted for the mid-block regions west of 20th Street and east of 20th Street. The locations for the counts were determined based upon key points and perceived areas with significant pedestrian activity.

- Trinity Drive and 15th Street (Pedestrian and Bicycle Counts)
  - Conducted on Thursday, December 11, 2014
    - (9-hour intersection count from 6:00-9:00 am, 11:00 am-2:00 pm, and 3:00 – 6:00 pm)
- Trinity Drive and 20th Street (Pedestrian and Bicycle Counts)

    - Conducted on Thursday, December 11, 2014
    - Second count conducted on Thursday October 27,2015
        - 12-hour intersection count from 6:00 am to 6:00 pm
- Trinity Drive and Oppenheimer Drive (Pedestrian and Bicycle Counts)
    - Conducted on Thursday, December 11, 2014
        - (9-hour intersection count from 6:00-9:00 am, 11:00 am-2:00 pm, and 3:00 - 6:00 pm)
- Trinity Drive (Mid-block) West of 20th Street to approximately the LAC Justice Center, and area east of 20th Street to approximately ½ block west of 15th Street. (Pedestrian Count only)
    - Conducted on Thursday, December 11, 2014
        - 11:00 am – 2:00 pm
        - 3:00 – 6:00 pm
    - Conducted on Friday, May 22, 2015 during a concert
        - 6:00 – 10:15 pm

Table 3. Peak Hour Intersection Pedestrian Counts
December 11, 2014 (Trinity Drive/Oppenheimer Drive Intersection)
October 27, 2015 (Trinity Drive/20th Street Intersection)
December 11, 2014 (Trinity Drive/15th Street Intersection)

	AM Period	**Noon Period**	**PM Period**
	Pedestrian Counts (Peak Hour)	Pedestrian Counts (Peak Hour)	Pedestrian Counts (Peak Hour)
Oppenheimer Drive/Trinity Drive	12 8:00 – 9:00 am	12 Noon to 1:00 pm	21 4:00 – 5:00 pm
20th Street/ Trinity Drive	10 7:45-8:45 am	20 2:30-3:30 pm*	10 4:15-5:15 pm
15th Street/ Trinity Drive	3 7:30-8:30 AM	17 11:30 am – 12:30 pm	17 3:30 – 4:30 pm

Pedestrian flows shown are totals for the intersection
*Mid-day peak hour for pedestrians occurred from 2:30 – 3:30 pm

Table 4. Pedestrian and Bicycle Count Summary Totals at Study Intersections
Counts conducted on December 11, 2014 and October 27, 2015

	Oppenheimer Drive/Trinity Drive intersection (9-hour total)	**20th Street/Trinity Drive intersection (12-hour total)**	**15th Street/Trinity Drive intersection (9-hour total)**
North leg crosswalk (east/west)	14	14 (17)*	11
South leg crosswalk (east/west)	11	27 (26)*	22

East leg crosswalk (north/south)	38	3 (5)*	8
West leg crosswalk (north/south)	24	2 (17)*	19
Total Pedestrian count	*87*	*46 (65)**	*60*
Total Bicycle Count	4	2 (4)*	3

**Counts shown to the right in parentheses were the results from the second count conducted on Thursday, October 27, 2015; All other counts shown above in the table were the results from the first counts that were conducted on Thursday, December 11, 2014*

Mid-block locations were selected for pedestrian counts, due to the context of the study area. Pedestrians congregate at Ashley Pond. Additionally, businesses south of Trinity Drive generate pedestrian traffic that cross Trinity Drive to go to restaurants in the Central Business District (CBD), particularly during the lunch periods from 11 am to 1 pm. In addition, Ashley Pond hosts weekly concerts during the spring and summer months. Overflow parking for these concerts is located south of Trinity Drive. Significant pedestrian traffic is generated during these events that cross Trinity Drive at un-controlled locations. For these reasons, two mid-block locations were chosen for pedestrian counts, the region on Trinity Drive, west of 20th Street, and the region on Trinity Drive, east of 20th Street.

Table 5. Trinity Drive Mid-Block Pedestrian Count
Thursday, December 11, 2014 (11:00 am to 2:00 pm)

Time	Trinity Drive (Midblock west of 20th Street)	Trinity Drive (Midblock east of 20th Street)
11:00-11:15 am	0	0
11:15-11:30 am	0	0
11:30-11:45 am	1	1
11:45-noon	0	0
Noon – 12:15	*5*	*0*
12:15-12:30	*2*	*0*
12:30-12:45 pm	*1*	*0*
12:45-1:00 pm	*1*	*0*
Peak Hour (Subtotal) Noon-1:00 pm	*9*	*0*
1:00-1:15 pm	0	0
1:15-1:30 pm	5	0
1:30-1:45 pm	0	0
1:45-2:00 pm	0	0
Count Total	15	1

Pedestrian Peak Hour (Noon to 1:00 pm)

Table 6. Trinity Drive Mid-block Pedestrian Count
Thursday, December 11, 2014 (3:00 pm to 6:00 pm)

Time	Trinity Drive (Midblock west of 20th Street)	Trinity Drive (Midblock east of 20th Street)
3:00-3:15 pm	*2*	*0*
3:15-3:30 pm	*3*	*0*
3:30-3:45 pm	*0*	*4*
3:45-4:00 pm	*0*	*0*
Peak Hour subtotal 3:00-4:00 pm	*5*	*4*
4:00-4:15 pm	0	3
4:15-4:30 pm	1	0
4:30-4:45 pm	0	0
4:45-5:00 pm	0	0
5:00-5:15 pm	0	0
5:15-5:30 pm	0	0
5:30-5:45 pm	0	0
5:45-6:00 pm	0	0
Count Total	6	7

Pedestrian Peak Hour (3:00 pm to 4:00 pm)

A second mid-block pedestrian count was conducted during a concert at Ashley Pond in the spring of 2015 on May 22, 2015 from 6:00 pm to 10:15 pm. A summary of the pedestrian count is provided below in Table 7.

Table 7. Trinity Drive Mid-block Pedestrian Count Summary
Friday, May 22, 2015 (6:00 pm to 10:15 pm)

Time	Pedestrians crossing Trinity Drive(N/S) midblock in the vicinity west of 20th Street	Pedestrians crossing Trinity Drive(N/S) midblock in the vicinity east of 20th Street
6:00 to 6:15 pm	0	1
6:15: to 6:30 pm	5	0
6:30 to 6:45 pm	14	5
6:45 to 7:00 pm	11	3
7:00 to 7:15 pm	12	8

7:15 to 7:30 pm	22	16
7:30 to 7:45 pm	17	6
7:45 to 8:00 pm	8	5
8:00 to 8:15 pm	24	10
8:15 to 8:30 pm	24	9
8:30 to 8:45 pm	8	1
8:45 to 9:00 pm	14	0
9:00 to 9:15 pm	*12*	*15*
9:15 to 9:30 pm	*16*	*10*
9:30 to 9:45 pm	*24*	*21*
9:45 to 10:00 pm	*19*	*2*
Peak Hour subtotal 9:00 to 10:00 pm	*71*	*48*
10:00 to 10:15 pm	15	3
Count Total	245	115

Future Traffic Considerations

Los Alamos was recently designated with the Manhattan Project National Historic Park. Planned facilities for the park include construction of a Visitor's Center. The new national park is projected to generate additional traffic to the study area. Estimated traffic was considered in this RSA as follows.

Approximately 77,000 to 80,000 visitors per year are estimated for the National Park based upon the assumption that a NPS Visitor's Center would generate similar traffic to the local (Bradbury Museum). Increases in vehicular traffic are projected in the vicinity and estimated as follows:

Table 8. Traffic Projections for the Manhattan Project National Park

Quantity	Description
80,000	Estimated annual Visitors to Park
250	Estimated annual visitor weekdays
50	Estimated annual visitor Saturdays
65,000	Estimated annual weekday visitors
15,000	Estimated Annual Saturday Visitors
260 Visitors Per Day (VPD)	Estimated daily weekday visitors
2	Estimated individuals per vehicle
130	Vehicle trip ends** per day

Quantity	Description
2	Accesses into Visitor's Center
4 enter/ 3 exit	Vehicles per hour Enter/Exit (10% of daily flow projected)

Additional traffic is expected when the teen center opens in the vicinity of Trinity Drive and 20th Street. It is anticipated that some additional trips on the Atomic City Transit Route 1 will occur between the Teen Center, Los Alamos High School, and the Aquatic Center in addition to added vehicular trips to and from the same sites.

A new traffic count was conducted and furnished by the study sponsor for use in this study. The traffic and pedestrian count was conducted on Thursday, October 27, 2015 after the opening of the teen center and completion of the construction on 20th Street at Ashley Pond. The October 2015 traffic count was approximately 4.9% lower (14,942 vehicles) than the December 2014 traffic count (15,711 vehicles) during the 6:00 am to 6:00 pm traffic count period. While the traffic counts were lower during the October count as compared to the December 2014 count, the pedestrian counts were higher during the October 2015 count. There were 46 pedestrians counted during the December 2014 count period, while 65 pedestrians were counted during the October 2015 count, resulting in an increase of 41% over the same twelve hour (6:00 am to 6:00 pm) period.

Based upon discussion with LAC transit, it is anticipated that a new clockwise route by Atomic City Transit may be added to Route 1 in the near future. This new service may reduce the need for Central Avenue or Trinity Drive pedestrians crossing either arterial for trips originating and ending "inside" the Central-Trinity loop. Pedestrians would still be required to cross the major streets when the origin or destination is on opposite sides of the loop. (e.g., a trip originating at the High School (North of Central Avenue "outside" and ending at the new Teen Center "inside" the loop.

ANALYSIS OF TRAFFIC CONTROL MEASURES

20th Street and Trinity Drive Signal Warrant Review based on MUTCD guidance and standards.

An initial review of the warrants for a traffic signal using the Thursday, December 11, 2014 intersection turning movement count data was conducted for the 20th Street and Trinity Drive (NM 502) intersection. A summary of the signal warrant review is provided below, while the detailed analysis review is provided in the appendix.

1. Eight-hour and Four-hour warrants: An initial review of existing conditions and proposed traffic conditions were reviewed for this warrant. Neither existing, nor future traffic projections satisfy either of the warrants. Detail is provided in the appendix.

2. Peak hour Warrant: (Major Street; Two lanes in each direction/Minor Street: Southbound two approach lanes (1649 vehicles per hour on the major street (Trinity Drive)/(162 vehicles

per hour on the minor street) (Southbound leg of 20th Street); The Manual on Uniform Traffic Control Devices (MUTCD) indicates that when there is a significant proportion of right turns, engineering judgement may be used to subtract a portion of right turns from the minor street volume when applying the peak hour warrant criteria. Eighty-eight percent (142 vehicles per hour) were turning right (southbound to westbound) at the intersection during the peak hour. After observing site conditions, engineering judgement was used to subtract 1/4 of the right turning volume for purposes of this warrant review. The peak hour warrant is not satisfied for the 20th Street and Trinity Drive intersection. See appendix for more detail.

Warrant 6 Coordinated Signal System

Support: Progressive movement in a coordinated signal system sometimes necessitates installing traffic control signals at intersections where they would not otherwise be needed in order to maintain proper platooning of vehicles

Issues related to progression/signal coordination and vehicle platooning on Trinity Drive was outside the scope and objective of this RSA. The primary focus and scope of the RSA was to consider pedestrian safety, operation, and mobility, while also considering safety of other modes such as vehicles and bicycles. A more detailed progression and coordination study could be conducted in the future to evaluate progression and platooning on Trinity Drive. LAC recently completed a signal progression/coordination study for Trinity Drive.

The 20th/Trinity intersection is not halfway between the intersections of Oppenheimer and 15th Street. The intersection (20thStreet and Trinity Drive) is 0.26 mile from Oppenheimer Drive and 0.16 mile from 15th Street (0.42 mile total distance). The non-symmetrical intersection spacing could present challenges to providing two-way traffic progression and optimal platooning of traffic on Trinity Drive. A new study, if conducted should consider the effects using a time-space diagram or similar analysis for new signal at 20th Street along Trinity Drive.

Therefore, Warrant 6 is not applicable at this time.

Warrant 8 Roadway Network

Support: Installing a traffic control signal at some intersections might be justified to encourage concentration and organization of traffic flow on a roadway network

A. Trinity Drive qualifies as part of the Los Alamos traffic network and is a major arterial. It is clear that existing traffic is heavily concentrated on Trinity Drive. The signalized network on Trinity Drive is currently a coordinated signal system maintained by LAC.

B. 20th Street does appear to be a primary street and does not provide significant connectivity through Los Alamos and does not qualify as part of part of the Los Alamos roadway as network . 20th Street does not provide connectivity as it terminates south of Trinity Drive and to the north at Central Ave.

Therefore Warrant 8 is not satisfied or applicable for this intersection.

3. Other Signal Warrants: Other warrants were reviewed and are not applicable or not satisfied for the intersection.

Sight Distance

The NMDOT Access Management Guidelines (Table 18.F-1, pg. 87) indicates that the desirable Stopping Sight Distance (SSD) for a roadway with a 35 mph posted speed limit with grades from -3% to +3% is 250 feet. For a 30 mph speed limit, the stopping sight distance is 200 feet (for -3% to +3% grades). The SSD guidelines should be considered in the design and construction of any of the countermeasures recommended in this RSA.

The SSD was reviewed for eastbound vehicles on Trinity Drive west of the 20th Street horizontal curve to 20th Street. The SSD exceeds 250 feet as measured from "Google Earth". The northwest corner of the intersection was under construction at the time of the field review meeting and SSD could not be assessed for the westbound direction. It is recommended that the intersection be re-evaluated to determine if the post-constructed conditions provide adequate sight distance at the intersection.

EXHIBIT 4
LOOKING WEST ALONG TRINITY DRIVE FROM THE NORTH LEG OF 20TH STREET

Pedestrian Hybrid Beacon (PHB) Warrant Review based on MUTCD Guidelines

A Pedestrian Hybrid Beacon (PHB) is a special type of hybrid beacon used to warn and control traffic at an unsignalized location to assist pedestrians in crossing a street or highway at a marked crosswalk. A PHB may be considered for installation to facilitate pedestrian crossings at a location that does not meet traffic signal warrants, or at a location that meets traffic signal warrants, but a decision is made not to install a traffic signal.

The warrant for a Pedestrian Hybrid Beacon (PHB) is a minimum of twenty (20) pedestrians per hour (pph) crossing Trinity Drive which is considered the major street and the width of the pedestrian crossing. The area total peak hour pedestrian count crossing Trinity Drive including the mid-block area just to the west of 20th St. is 9 pph. The PHB warrant was reconsidered for

the new data received on in October 2015. Even though pedestrian traffic was higher, the warrant was still not satisfied.

Rectangular Rapid Flash Beacon

Rectangular Rapid Flash Beacons (RRFB) are relatively new treatments options used in conjunction with pedestrian crosswalk signs that provide a flash indication to motorists when pedestrians have activated a pedestrian call to cross at the crosswalk. RRFBs can be used on two-lane and multi-lane roadways. RRFBs have been shown to increase vehicle yielding and reduce the incidence of multiple-threat crashes at crosswalks on multi-lane roads (i.e., crashes where a vehicle in one lane stops to allow a pedestrian to cross the street while a vehicle in an adjacent lane, traveling in the same direction strikes the pedestrian). Generally studies indicate for RRFBs vehicles stop 80 percent of the time.

Crash Data Collection and Analyses

Crash data for the years (2008 to 2014) were provided by Los Alamos County (LAC) crash records department. The observed crash frequency (OCF) (Exhibit 5) for the study area is 31 crashes over seven years or about 4.5 crashes per year on average. There were nine crashes in 2009 which had the highest crash frequency during the study period.

The predominant crash type was parking related crashes off of the public roadway and therefore did not occur on Trinity Drive, which accounted for nine (9) crashes or nearly one third of the crashes in the study area (Exhibit 6). The second highest crash type recorded were rear end crashes at the signalized intersection of Trinity Drive and Oppenheimer Drive and Trinity Drive and 15th Street. Rear end crashes that occurred at the signalized intersections accounted for seven (7) crashes or nearly 25% of the total.

There were two (2) pedestrian-vehicle crashes at the intersection of Trinity Drive and Oppenheimer Drive in 2011, resulting in injuries to the pedestrians. There was one pedal cyclist crash in Year 2009, which resulted in an injury to the pedal cyclist. Overall, the crash analysis indicated that there were no fatal crashes, six injury crashes, and 29 property damage only crashes during the study period.

EXHIBIT 5

OBSERVED CRASH FREQUENCY FROM OPPENHEIMER DRIVE TO 15TH STREET

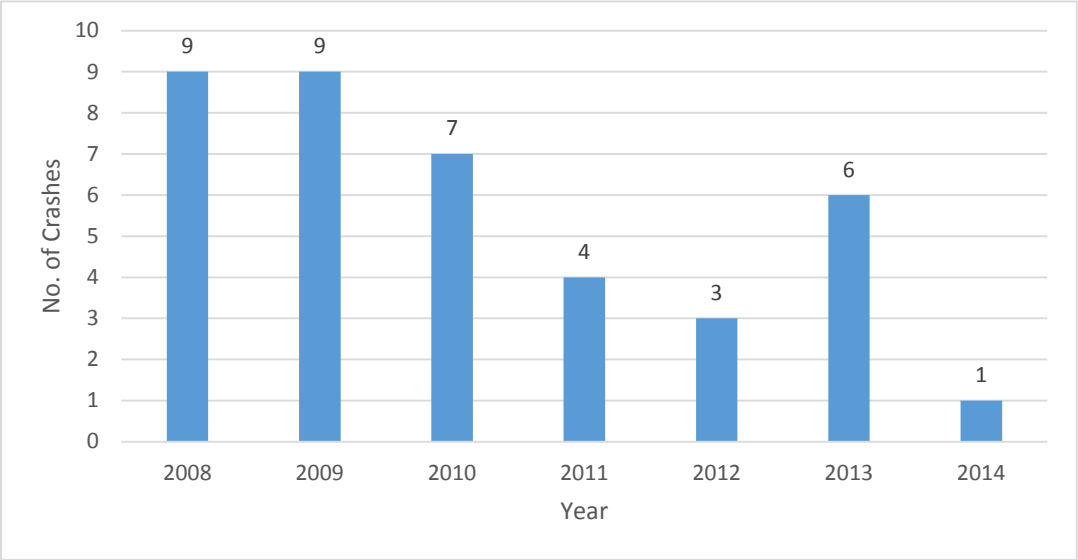
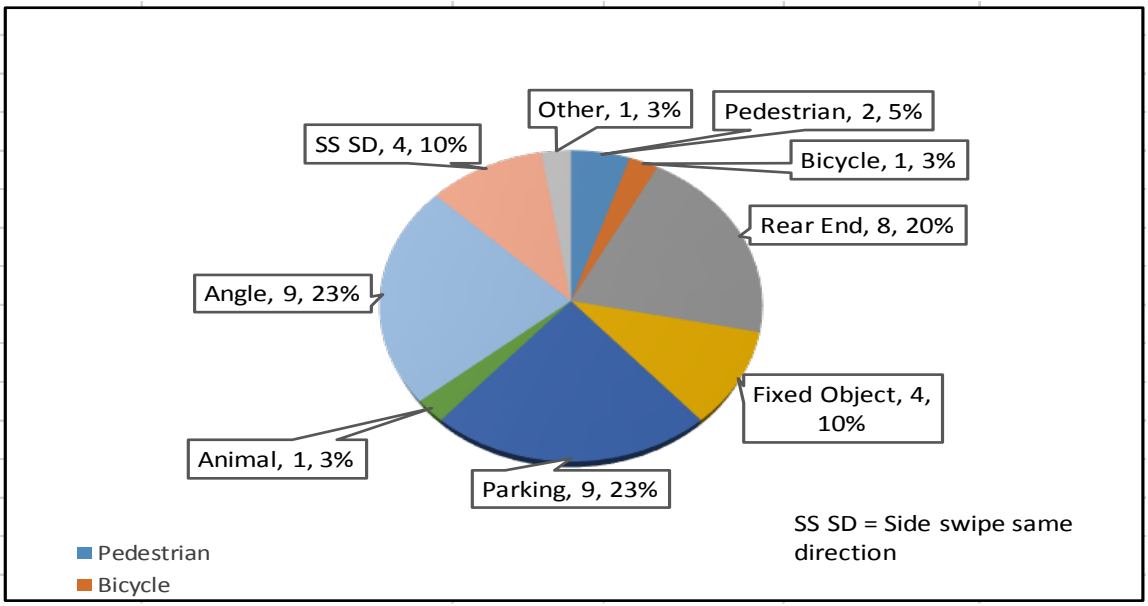


EXHIBIT 6

CRASH SUMMARY BY TYPE



Field Observations and Recommended Countermeasures

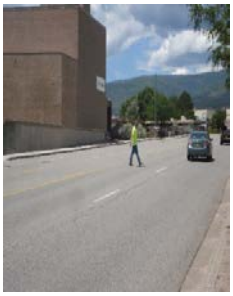
The following key findings resulted from the study. The recommendations are presented below in Table 9. Field Observations and Recommended Countermeasures.

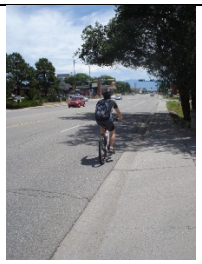
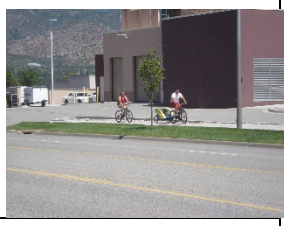
Table 9. Field Observations and Recommended Countermeasures

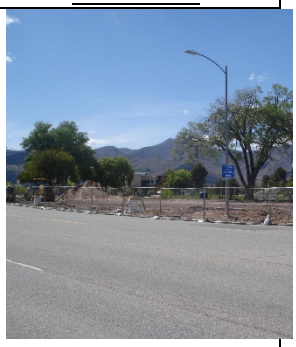
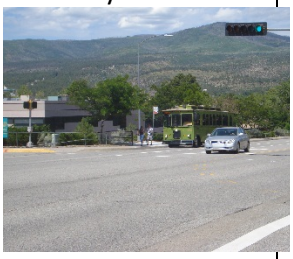
Field Observation	Recommended Countermeasure	Example/Comment or photo of Existing Conditions
1. Sidewalks and ADA sidewalk ramps at intersections and driveways do not meet current Public Right-of-Way and Accessibility Guidelines (PROWAG). Sidewalks are adjacent to Trinity Drive travel lanes in some sections of the study area.	Reconstruct sidewalks and ADA ramps to provide 5 FT to 6 FT minimum desired width with a 6 FT landscaped buffer in areas with available right-of-way width and ADA sidewalk ramps to meet current PROWAG guidelines. 	Deficient Sidewalk ramp at curb return 
2. Perceived lack of adequate crossing gaps for vehicles and pedestrians. Free-flow vehicles on Trinity Drive conflicts with pedestrians crossing Trinity Drive at 20th Street, or with vehicles on 20th Street crossing Trinity Drive, or vehicles turning onto Trinity Drive from 20th Street. (Alternative 1)	A traffic signal warrant review was conducted for the intersection of 20th Street and Trinity Drive. Warrants were reviewed and it was determined that they were either not satisfied or applicable to the site. The peak hour warrant was reviewed as follows: The peak hour distribution of traffic for southbound 20th Street has 88% right turns. The MUTCD warrant guidance indicates that engineering judgement should be used to subtract a proportion of right turning traffic movements from the warrant as right turns have a lesser need for a traffic signal than left or through movements. After visiting the site and observing site conditions, engineering judgement was used to subtract 1/4 of the right turning volume for purposes of this warrant review. The intersection traffic conditions do not satisfy any of the warrants for installation of a traffic signal at this time.	

Field Observation	Recommended Countermeasure	Example/Comment or photo of Existing Conditions
3. Perceived lack of adequate gaps for pedestrians crossing Trinity Drive at 20th Street. (Alternative 2)	A Pedestrian Hybrid Beacon (PHB) and marked crosswalk mid-block west of 20th Street was reviewed. The lower threshold for pedestrian crossing flow is 20 pedestrians per hour (pph) based upon MUTCD warrant criteria for a Pedestrian Hybrid Beacon. The mid-block peak hour pedestrian crossing volume west of 20th Street was 9 PPH. There were 13 pedestrians (October 2015 pedestrian count) crossing Trinity Drive at 20th during the peak hour.	
4. Perceived lack of adequate gaps in traffic on Trinity Drive for pedestrians crossing (north/south) in the vicinity of 20th Street and Trinity Drive **Designated Mid-block crosswalk concept** 	Install a raised median on Trinity Drive at Ashley Pond directly adjacent to the monument/2201 Trinity Drive. (see left for sketch/concept) The raised median could be approximately 200-300 feet in length. Install a marked crosswalk, signage per MUTCD and ADA compliant ramps at the sidewalk/ crosswalk junction. Supplemental LED pavement lights for the crosswalk and RRFBs should be considered to enhance the warning for vehicles that there is a designated pedestrian crosswalk. See pg. 25 for supplemental recommendations associated with RRFB installation (See No. 9 (part 3) and No. 15 below for related recommendation). As RRFB installations are considered by the FHWA to be experimental, approval by the FHWA is necessary before installation. See more details below ** For a mid-block location, pedestrian crosswalk signs and RRFBs could be installed in the median and along the right side of the roadway in both the eastbound direction and the westbound direction of Trinity Drive. The design engineer should consider whether advanced signing and warning is needed for the westbound direction, east of the existing horizontal curve. The RRFBs must shall be designed and installed in accordance with FHWA's Interim Approval requirements. (or final approval if available at the time of design)	

Field Observation	Recommended Countermeasure	Example/Comment or photo of Existing Conditions
	A mid-block crosswalk at this location on Trinity Drive would provide a designated pedestrian crossing for motel/hotel patrons (existing motel and future hotel currently considering this area), adult day care residents, and others to more easily access Ashley Pond, the Community Center, and other downtown amenities.	
5. ADA pedestrian accommodations at signalized intersections; 15th Street/Trinity Drive and Oppenheimer Drive/Trinity Drive	Re-construct sidewalk ramps and construct additional sidewalk adjacent to existing pedestrian push buttons. Consider adding pedestrian countdown signals and audible pedestrian signals for visually impaired at Oppenheimer Drive/Trinity Drive and 15th Street/Trinity Drive intersections if appropriate.	Reduced accessibility to pedestrian push buttons by wheelchair conveyance 
6. Atomic City Transit trolleys stops in through travel lane on Trinity Drive	Seek opportunities to construct bus pull-outs at favorable locations to allow trolley to stop outside of the through travel lanes on Trinity Drive.	Transit stop where Atomic City Transit must stop in the Eastbound Travel lane 
7. Possible under-estimation of vehicle, pedestrian, and bicycle traffic flows due to	Conduct a new count in the late summer or early fall (September or October) for comparison. (completed)	Not available

Field Observation	Recommended Countermeasure	Example/Comment or photo of Existing Conditions
seasonal variation of traffic and pedestrians. Study counts were conducted for the study in mid-December.		
8. Ingress/egress traffic conflicts at driveway to private access (1695 Trinity Dr.) during peak hour. Queue length for left turn entering movements extends beyond existing driveways during the peak hour making left exiting movements difficult.	Provide additional access management to restrict left exiting movements from northbound to westbound, thus requiring exiting vehicles to turn right only (northbound to eastbound only).	Example of a driveway (access) conflict 
9. Address increase in pedestrian volumes crossing Trinity Drive at non-designated pedestrian crosswalk locations during special events held at Ashley Pond.	1. Increase public outreach/notification to encourage/enforce parking north of Trinity Drive to reduce the pedestrian traffic volume crossing Trinity Drive at non-designated crossings. Consider supplemental parking north of Trinity Drive for special events and/or consideration of park and ride shuttles for events. 2. Provide temporary traffic control through enforcement during special events to provide high visibility and a supervised crossing near mid-block monument at Ashley Pond for pedestrians. This stops vehicular traffic on Trinity Drive for pedestrians to cross at a designated temporary crossing location. Incorporate a lane reduction and/or speed reduction on Trinity Drive during the event. 3. Consider median refuge islands/typical section in the vicinity of the Historic Marker/monument that is consistent with Options B or C of draft Trinity Drive design recommendations by LAC. (see No. 4 and No.	Pedestrian crossing at un-controlled, non-designated location on Trinity Drive 

Field Observation	Recommended Countermeasure	Example/Comment or photo of Existing Conditions
	15 for related recommendation) 	
10. Speeds too fast for the conditions	Reduce 35 mph speed limit to 30 mph speed limit coupled with increased law enforcement for new speed limit. A reduction in the posted speed limit on Trinity Drive would decrease the stopping sight distance if vehicles reduce speeds. LAC may wish to conduct a speed study to verify this has occurred.	Not applicable
11. Bicycle usage 50% street/50% sidewalk	Incorporate public outreach and/or enforcement to discourage bicycle ridership on sidewalks and to encourage ridership on bike paths or lanes.	 Above: Pedal cyclist riding on Trinity Drive in the study area limits; Below: Pedal cyclists riding on Trinity Drive sidewalk in the study area limits 
12. Roadway and Pedestrian lighting upgrades	Roadway lighting is LED; evaluate light coverage at Ashley pond for possible gaps.	Cobra-head Street lighting (LED)

Field Observation	Recommended Countermeasure	Example/Comment or photo of Existing Conditions
	Consider supplementing with lower level pedestrian lighting in high-pedestrian traffic areas such as at bus stops and in the Ashley pond area. Low-level pedestrian lighting in the downtown area 	
13. Accommodate additional transit demand in the downtown area which results in increased pedestrian flows crossing Central Avenue and Trinity Drive	Support the LAC proposed addition of a new route to supplement Route 1 in the opposite direction (clockwise). The new route will provide additional transit capacity and additional transit/pedestrian accommodation to the "inner" loop origin and destination locations between Central and Trinity without requiring pedestrians to cross either Central Avenue or Trinity Drive for origins and destinations inside the downtown Central/Trinity loop.	Atomic City Transit on Trinity Drive 
14. Consider additional Park and Ride Considerations	See item 12 above. Support additional transit stops at appropriate locations to serve and encourage park and ride operations.	Not applicable
15. Manage un-controlled pedestrian traffic crossing Trinity Drive from 20th Street to Oppenheimer Drive during weekday noon peak. Similar to No. 9, but usage occurs more frequently and at different times. The un-controlled pedestrian flows are lower than during special events.	Consider median refuge islands in the vicinity of the Historic Marker/monument that are consistent with Options B or C of draft Trinity Drive design recommendations by LAC. This would essentially replace the Continuous Two-Way-Left-Turn-Lane with a raised median. Consideration of a Road Diet such as going from the five-lane section to a three-lane section (if considered) should include a detailed evaluation/feasibility using Highway Capacity Manual (HCM) and Highway Safety Manual (HSM) Techniques.	See appendix design concepts for Trinity Drive

Field Observation	Recommended Countermeasure	Example/Comment or photo of Existing Conditions
16. Review Stopping Sight Distance at the 20th Street and Trinity Drive Intersection	Observe and evaluate the post-construction conditions at the 20th Street and Trinity Drive Intersection for adequate sight distance	

Summary and Conclusions

This study consisted of a Road Safety Audit (RSA) along Trinity Drive (NM 502) from Oppenheimer Drive to 15th Street in Los Alamos, NM. The RSA was initiated to specifically consider pedestrian safety, mobility and operations in the study area in addition to other modes of transportation as they are inter-related. The following conclusions are offered.

Safety improvement recommendations include constructing sidewalk upgrades in the study area consistent with the Public Right-of-way and Accessibility Guidelines (PROWAG). The suggested safety countermeasures also provide opportunities to improve pedestrian safety for pedestrians that cross Trinity Drive at non-designated locations during special events or during routine weekday noontime peak hours. Making pedestrian push buttons more accessible for ADA at both signalized intersections is recommended.

The RSA team recommended that signal warrants be reviewed for installation of a traffic signal at 20th Street and Trinity Drive. A review of the signal warrants indicates that the peak hour traffic warrant is not currently satisfied. Other warrants such as the four-hour volume and eight-hour volume warrant are not currently satisfied based upon the initial review. The crash warrant was not satisfied for the intersection. However, with the County's economic development initiative with the land purchase and splitting of property south of Trinity and 20th Street, signal warrants should be reviewed once again considering additional trips generated with proposed retail and commercial business.

1. A new traffic count(s) (vehicle-pedestrian-bicycle) conducted by the sponsor during the peak summer or fall timeframe was recommended by the RSA workshop team at the 20th/Trinity Intersection (Intersection Turning Movement). These counts were conducted, received and incorporated into the RSA in October 2015.

2. The traffic counts were approximately 4.9% lower in October 2015, when compared to traffic counts conducted in December 2014. While traffic counts were lower, pedestrian counts were 52% higher. Bicycle counts were similar in both counts.

3. Conduct an Intersection Capacity Study (Level of Service) at the intersection of 20th Street and Trinity Drive for two-way stop controlled intersection (existing traffic control) and as a signalized intersection.

4. In the future, if a signal becomes warranted at the Trinity Drive and 20th Street intersection, it is recommended that a study be conducted to evaluate and incorporate the signalized

intersection into LAC's coordinated signalized network on Trinity Drive to maintain acceptable progression on Trinity Drive.

5. Consider conducting a detailed evaluation/feasibility study for a Road Diet on Trinity Drive (NM 502) using Highway Capacity Manual (HCM) and Highway Safety Manual (HSM) techniques. The evaluation/feasibility study should consider the addition of bicycle lanes on Trinity Drive to provide designated lanes for bicyclists to help alleviate the usage of the sidewalks by bicyclists (as noted in Field Observation # 11, page 19).

In conclusion, a summary of the recommended countermeasures are provided below along with relative costs of the countermeasures (low cost $, medium cost $$, and high cost $$$)

Table 10. Summary of the Recommended Countermeasures and Relative Cost

Relative Cost	Time frame	Recommended Countermeasure
$	S	Conduct a supplemental traffic count (completed)
$$	S	Install median refuge island and marked crosswalk at the Ashley Pond/Trinity Drive location
$	S	Reduce speed limit/enforcement
$	S-M	Incorporate access management to reduce driveway conflicts (turning movement restrictions with geometric improvements)
$$	S-M	Sidewalk ramp improvements, pedestrian countdown and audible pedestrian indications at intersections
$$	M	Construct bus pull-outs in appropriate locations
$$	M	Supplementary Route 1 bus route in clockwise direction
$-$$$	S-L	Public Outreach/Enforcement/Temporary Traffic control and supplementary parking during special events
$$$	L	Reconstruct sidewalks, provide buffers, and ADA ramps in areas of sufficient right-of-way
$$$	L	Install a traffic signal and incorporate into LAC coordinated signal system on Trinity Drive (future consideration)
$$	L	Install a Pedestrian Hybrid Beacon and marked crosswalk (Future consideration)
$$$	L	Road Diet or other changes to the typical section on Trinity Drive for multi-modal safety and operational considerations

S = short-term time frame for implementation of countermeasure
M = medium-term time frame for implementation of countermeasure
L = long-term time frame for implementation of countermeasure

****Rectangular Rapid Flashing Beacon (RRFB) Additional Recommendation prior to Implementation**

The FHWA will grant Interim Approval for the optional use of the RRFB as a warning beacon to supplement standard pedestrian crossing or school crossing signs at crosswalks across uncontrolled approaches to any jurisdiction that submits a written request to the Office of Transportation Operations. (Ref: FHWA Memorandum MUTCD – Interim Approval for Optional Use of Rectangular Rapid Flashing Beacon (IA-11, July 16, 2008). A state may request Interim Approval for all jurisdictions in that State. Jurisdictions using RRFB under this Interim Approval must agree to comply with the technical conditions detailed below, to maintain an inventory list of all locations where the devices are placed, and to comply with Item F at the bottom of Page 1A-6 of the 2003 MUTCD, Section IA.10 which requires:

"An agreement to restore the site(s) of the Interim Approval to a condition that complies with the provisions in this Manual within 3 months following the issuance of a Final Rule on this traffic control device. This agreement must also provide that the agency sponsoring the Interim Approval will terminate the use of the device or application. The FHWA's Office of Transportation Operations has the right to terminate the interim approval at any time if there is an indication of safety concerns."

It is recommended that NMDOT submit the above written request to the Office of Transportation Operation to obtain approval prior to implementation of the RRFB at this location and for other future uses of RRFBs by NMDOT or local jurisdictions in New Mexico.

Appendices

A) FIELD MEETING AGENDA

B) WORKSHOP SUMMARY

C) TRAFFIC COUNT DATA
   DECEMBER 11, 2014
   MAY 22, 2015
   OCTOBER 27, 2015

D) SIGNAL WARRANT REVIEW

E) ATOMIC CITY RT 1 ROUTE MAP

F) LAC TYPICAL SECTION CONCEPTS FOR TRINITY DRIVEAND 20TH STREET ATTACHED

MEETING AGENDA

Road Safety Audit (Trinity Drive from Oppenheimer Drive to 15th Street)

DATE: Thursday, July 23, 2015

TIME: 9:00 am – 2:00 pm

LOCATION: Los Alamos County Police Department Training Room (2500 Central Ave.)

Introductions and Meeting Kick-off (9:00 am – 9:30 am)

Overview, training, and orientation
Objectives and format for the day

Study Background and Perspectives (9:30 am – 10:00 am)

Context and Setting
Los Alamos County Traffic Operations, Public Works
NMDOT (GO and D5)
Atomic City Transit
Local Law Enforcement
LANL

Data Collection Summary and Discussion (10:00 am – 10:45 am)
Traffic, Speeds, Pedestrians and Bicycles, Operations and Geometrics
Transit, Special Events, Night-time and Lighting, Special Users (Older Adults) (Young Adults/Teens)

Field Review (10:45 am- 11:45 am)

Team to walk the project study area; (Please bring and wear reflective safety vests)

Lunch (11:45-12:45)

Post Field Review follow-up Summary Discussion (1:00 pm -2:00pm)

Objective is to develop findings, obtain initial comments, receive suggestions and buy-in from RSA team and discuss next steps

CH2MHILL

SUBJECT ROAD SAFETY AUDIT FIELD REVIEW MEETING
TRINITY DRIVE/OPPENHEIMER TO 15th

BY

SHEET NO. ____ of ____ DATE

PROJECT NO. JULY 23, 2015

Sign in.

NAME	REPRESENTING	PHONE	EMAIL
Alipio Mondragon	LAC Traffic	662-8176	a.mondragon@lacnm.us
M S JAWADI	NM DOT D5	505 995 7802	ms.jawadi@state.nm.us
John Nitzel	CH2M	505-855-5235	john.nitzel@ch2m.com
ROSA KOZUB	NMDOT-Planning	476-3742	rosa.kozub@state.nm.us
ERIC MARTINEZ	LAC-PW	662-9101	eric.martinez@lacnm.us
Bryan Aragon	LAC-PW	6628117	bryan.aragon@lacnm.us
Philo Shelton	LAC PW	662-8150	philo.shelton@lacnm.us
NATALIE ROMERO TRUJILLO	LANL	667-3438	natalie@lanl.gov
Jason Wardlow-Herrera	LAPD	690-3315	Jason.herrera@LACnm.us
Clay Koontz	ch2m	505.855.5213	clay.koontz@ch2m.com

B) WORKSHOP SUMMARY

A summary of the RSA workshop is provided below. The summary is divided into three parts, Presentation Notes, Field Review Notes and Summary Findings.

Presentation Notes:

1. Consider Manhattan National Park Designation and Visitor's Center
2. Consider Teen Center relocations and future demand in new location on 20th Street, east of Ashley Pond. The existing community center building is being renovated to become the new teen center. The teen center is expect to be complete and open in September 2015.
3. City working with NPS to establish visitor's center in teen center.
    Ashley Pond
    Fuller Lodge
    Bradbury Museum
    Crossing to DOE use shuttle
4. Teen Center complete in the fall of 2015; Street End of September
5. New bus stops planned at 20 street side of Trinity Dr.
6. Atomic City Transit: A new service is going to be added to Route 1 to provide a route in the clockwise direction. ACT is interested in exploring the addition of bus pull outs with ADA accessible bus stops.
7. Discussions have taken place with NM Park and Ride. Park and Ride location may move stop to north side of Trinity on west side of Ashley Pond.
8. Los Alamos has active cycling population; there is a need for cycling facilities.
9. As part of teen center, two new crosswalk crossings on 20th are planned.
10. The City is developing and acquiring r/w on 20th Street east side to south side plan (60 ft. r/w)
11. r/w on Trinity Dr.80-100 ft.
12. Consider park services estimate of traffic for roundabout study.
13. Will pedestrian volumes be higher in the summer? Will bicycle traffic be higher?
14. Consider a supplemental traffic/pedestrian/bicycle count in September to capture seasonal variation in traffic. (LAC may conduct more)
15. Current teen center has 60 + users at one time.
16. Recreational use?
17. The speed limit on Trinity Drivees 35 mph.
18. Is the speed limit (35 mph) appropriate for downtown location? 85th percentile speeds are 37 mph.
19. Transit will add service and decrease headways to 15 minutes.
20. NCRTP (North Central Regional Transit District
21. Police (Crash breakdown) not accurate. (Have many more non reportable)
22. Police will provide non-reportable

Field Notes:

ADA ramps inadequate (Oppenheimer and Trinity Dry)
Push buttons not located properly

Upgrade pedestrian signals to countdown and audible
Curb sidewalks undesirable
Drive at gas station not ADA compliant eastbound lighting may be marginal
City does plow sidewalks
5 ft. sidewalks. What if widen 3 feet
Possible property owner dedication of space.
Look at access management
Add islands
Look at road diet. Evaluate capacity
Traffic consideration. Traffic calming
Supplementary lower level pedestrian lighting
All individuals First Adult facility cross center.
Site/state requirements be part of bldg. Use park for farmers market Min 3 times/????
May have need for audible pedestrian crossings in area.

20th Street (Collector)
County plans to acquire full r/w to south to provide connectivity
Plan for infill of south area.
Good place for disabled to cross
Sight distance at intersection an issue
Consider bus pull outs

East

On south side; challenging access management for Left turns out of Sonic and Chili Works. There is an overlapping conflict between the two, particularly during peak hour.

ADA lacking.
R/w limited for sidewalk offset
Noted 3+ pedestrians/ 1 bike
Bus stops (on south side not pull outs)
Look for specific locations to include bus pull-outs
Bike use 50% road/ Bike use 50% street.

15th Street
Push buttons not accessible
Current ramps no longer compliant
Driveways not ADA compliant
Sidewalk has uneven slabs (4' sidewalks)

20th Signal??
West to add park and ride stops in Justice center.

Los Alamos Complete Streets (ordinance??)

Review Comments

Can work be staged? Can other funding be used?

Long-term
Intermediate
Short-term

Oppenheimer Drive/Trinity Drive is the oldest traffic signal in Los Alamos.

Overall: Wrap-up meeting was a review of stakeholder comments and field review. With few exceptions, all recommendations were accepted. Most exceptions related to need to conduct another study of pedestrians in Oct. and action item to check signal at 20th satisfied MUTCD warrants; and if so, NMDOT still has signal program.

An additional comment; based upon field observations, pedestrian and bicycle volumes exceeded those counted in December 2014 study. Thus seasonal variation is clearly a factor.

20th Street and Trinity Dr.

Also it is important to consider added future traffic due to additional NPS visitors expected upon opening of Visitor's Center. Teen usage and development of south 20th Street including a diversion of existing traffic to 20th Street from Driveway. (e.g. Los Alamos School Administration/school site.

Note: Review of Warrant 3 Peak hour indicates with major street volume of over 160+/- and 2 lane on Side Street and major 150 vph is lower threshold of side street volume. 20th and Trinity Drive could satisfy Warrant 8. Roadway Network. 20th St. is a collector in downtown area, at a logical location on? Trinity Network in terms of signal spacing.

20th Street/Trinity Dr.
Signal Warrant
Signal Spacing

Discuss Seasonal Variation
For the Special Event. Consider Additional Traffic control/enforcement. Cones/Speed Reduction parking

20th Street/Trinity Signal Warrant Investigation

Special Event. Increased law enforcement flagger control. Cones one lane parking. With controlled crossing.

CH2M HILL : Albuquerque
3721 Rutledge Rd. NE
Suite B-1
Albuquerque, New Mexico, United States 87109
505.884.5600 clay.koontz@ch2m.com

Count Name: Trinity Dr./20th
Site Code:
Start Date: 12/11/2014

Turning Movement Data

Start Time	20th Southbound						Trinity Dr Westbound						20th Northbound						Trinity Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	4	0	1	0	0	5	0	34	0	0	0	34	0	0	0	0	0	0	0	29	2	0	0	31	70
6:15 AM	8	0	2	0	0	10	3	58	1	0	0	62	0	0	0	0	0	0	0	40	5	0	0	45	117
6:30 AM	12	0	1	0	0	13	1	69	0	0	0	70	0	0	0	0	0	0	0	53	2	0	0	55	138
6:45 AM	13	0	0	0	0	13	4	106	0	0	0	110	0	0	0	0	0	0	0	51	1	0	0	52	175
Hourly Total	37	0	4	0	0	41	8	267	1	0	0	276	0	0	0	0	0	0	0	173	10	0	0	183	500
7:00 AM	12	0	2	0	0	14	5	129	0	0	0	134	0	0	0	0	0	0	0	94	15	0	0	109	257
7:15 AM	26	1	2	0	0	29	7	138	0	0	0	145	0	0	0	0	1	0	0	84	9	0	0	93	267
7:30 AM	18	0	0	0	0	18	6	123	0	0	0	129	0	1	0	0	0	1	0	113	7	0	0	120	268
7:45 AM	18	0	6	0	0	24	9	151	3	0	0	163	0	0	0	0	0	0	1	134	14	0	1	149	336
Hourly Total	74	1	10	0	0	85	27	541	3	0	0	571	0	1	0	0	1	1	1	425	45	0	1	471	1128
8:00 AM	13	0	2	0	0	15	6	115	1	0	0	122	1	0	0	0	1	1	0	133	13	0	0	146	284
8:15 AM	17	0	1	0	2	18	3	123	0	0	0	126	0	0	0	0	0	0	0	136	12	0	0	148	292
8:30 AM	10	0	6	0	0	16	3	102	0	0	0	105	0	0	0	0	0	0	1	122	12	0	0	135	256
8:45 AM	16	0	4	0	0	20	2	119	0	0	0	121	1	1	0	0	0	2	0	116	17	0	0	133	276
Hourly Total	56	0	13	0	2	69	14	459	1	0	0	474	2	1	0	0	1	3	1	507	54	0	0	562	1108
9:00 AM	13	0	4	0	1	17	5	95	0	0	0	100	2	0	0	0	0	2	0	117	13	0	0	130	249
9:15 AM	12	0	6	0	0	18	5	86	0	0	0	91	0	0	0	0	0	0	0	109	7	0	0	116	225
9:30 AM	11	0	4	0	1	15	4	90	0	0	0	94	0	0	0	0	0	0	0	106	13	0	0	119	228
9:45 AM	19	0	1	0	0	20	5	130	1	0	0	136	0	0	0	0	2	0	0	129	16	0	0	145	301
Hourly Total	55	0	15	0	2	70	19	401	1	0	0	421	2	0	0	0	2	2	0	461	49	0	0	510	1003
10:00 AM	13	0	3	0	1	16	7	96	0	0	0	103	0	0	0	0	0	0	0	106	19	0	0	125	244
10:15 AM	10	0	4	0	0	14	9	97	0	0	0	106	0	1	0	0	0	1	0	127	16	0	0	143	264
10:30 AM	7	0	4	0	1	11	8	117	1	0	0	126	0	0	0	0	0	0	0	115	12	0	0	127	264
10:45 AM	15	1	6	0	0	22	10	114	0	0	0	124	0	0	0	0	0	0	0	168	12	0	0	180	326
Hourly Total	45	1	17	0	2	63	34	424	1	0	0	459	0	1	0	0	0	1	0	516	59	0	0	575	1098
11:00 AM	18	0	2	0	0	20	8	126	1	0	0	135	0	0	0	0	0	0	0	177	26	0	0	203	358
11:15 AM	24	0	5	0	0	29	7	121	0	0	0	128	1	0	0	0	1	1	1	253	38	0	0	292	450
11:30 AM	27	0	7	0	1	34	13	153	2	0	0	168	1	0	0	0	3	1	0	254	33	0	0	287	490
11:45 AM	30	0	6	0	1	36	10	161	0	0	0	171	1	0	0	0	1	1	0	251	41	0	0	292	500
Hourly Total	99	0	20	0	2	119	38	561	3	0	0	602	3	0	0	0	5	3	1	935	138	0	0	1074	1798
12:00 PM	39	0	5	0	0	44	12	190	2	0	0	204	0	0	0	0	0	0	0	243	39	0	0	282	530
12:15 PM	40	0	5	0	0	45	7	183	0	0	0	190	0	0	1	0	0	1	0	192	30	0	0	222	458
12:30 PM	35	0	4	0	0	39	7	197	1	1	0	206	2	0	0	0	0	2	0	125	18	0	0	143	390
12:45 PM	28	0	6	0	0	34	6	219	1	0	0	226	1	0	0	0	0	1	0	158	18	0	0	176	437
Hourly Total	142	0	20	0	0	162	32	789	4	1	0	826	3	0	1	0	0	4	0	718	105	0	0	823	1815
1:00 PM	34	0	3	0	0	37	9	191	1	0	0	201	0	0	0	0	1	0	0	134	11	0	0	145	383
1:15 PM	26	0	1	0	0	27	10	171	1	0	0	182	1	0	1	0	1	2	0	142	20	0	0	162	373
1:30 PM	23	0	4	0	0	27	11	148	0	0	0	159	0	0	0	0	0	0	0	139	17	0	0	156	342
1:45 PM	15	0	3	0	0	18	10	164	1	0	0	175	1	0	1	0	1	2	0	133	11	0	0	144	339
Hourly Total	98	0	11	0	0	109	40	674	3	0	0	717	2	0	2	0	3	4	0	548	59	0	0	607	1437

2:00 PM	20	0	3	0	0	23	6	114	1	0	0	121	0	0	0	0	1	0	1	133	18	0	1	152	296
2:15 PM	14	0	6	0	0	20	8	130	0	0	0	138	0	0	0	0	0	0	0	113	21	0	0	134	292
2:30 PM	24	0	4	0	0	28	3	123	1	0	0	127	1	0	0	0	0	1	0	159	9	0	0	168	324
2:45 PM	16	1	2	0	1	19	7	147	0	0	0	154	0	0	1	0	0	1	2	147	13	0	0	162	336
Hourly Total	74	1	15	0	1	90	24	514	2	0	0	540	1	0	1	0	1	2	3	552	61	0	1	616	1248
3:00 PM	22	0	3	0	0	25	3	131	0	0	0	134	1	0	0	0	2	1	0	162	20	0	0	182	342
3:15 PM	13	1	6	0	0	20	7	95	0	0	0	102	0	0	0	0	1	0	0	153	21	0	0	174	296
3:30 PM	16	0	7	0	2	23	4	126	0	0	0	130	2	2	0	0	0	4	0	200	16	0	0	216	373
3:45 PM	10	0	4	0	2	14	4	100	1	0	1	105	0	0	0	0	1	0	0	181	24	0	0	205	324
Hourly Total	61	1	20	0	4	82	18	452	1	0	1	471	3	2	0	0	4	5	0	696	81	0	0	777	1335
4:00 PM	7	0	7	0	0	14	2	114	1	0	2	117	1	0	0	0	5	1	0	243	22	0	0	265	397
4:15 PM	12	0	8	0	0	20	5	138	0	0	0	143	1	0	0	0	0	1	0	209	20	0	0	229	393
4:30 PM	17	0	7	0	0	24	5	106	0	0	0	111	1	0	1	0	0	2	0	248	21	0	0	269	406
4:45 PM	13	0	7	0	0	20	4	137	0	0	0	141	2	0	0	0	1	2	0	243	25	0	0	268	431
Hourly Total	49	0	29	0	0	78	16	495	1	0	2	512	5	0	1	0	6	6	0	943	88	0	0	1031	1627
5:00 PM	14	0	3	0	1	17	4	140	1	0	0	145	3	0	0	0	0	3	0	262	19	0	0	281	446
5:15 PM	7	0	5	0	0	12	2	153	0	0	0	155	1	0	0	0	3	1	0	231	27	0	0	258	426
5:30 PM	12	0	6	0	0	18	4	138	0	0	0	142	0	0	0	0	1	0	0	212	15	0	0	227	387
5:45 PM	9	0	3	0	0	12	3	150	0	0	0	153	1	0	0	0	0	1	1	171	18	0	0	190	356
Hourly Total	42	0	17	0	1	59	13	581	1	0	0	595	5	0	0	0	4	5	1	876	79	0	0	956	1615
Grand Total	832	4	191	0	14	1027	283	6158	22	1	3	6464	26	5	5	0	27	36	7	7350	828	0	2	8185	15712
Approach %	81.0	0.4	18.6	0.0	-	-	4.4	95.3	0.3	0.0	-	-	72.2	13.9	13.9	0.0	-	-	0.1	89.8	10.1	0.0	-	-	-
Total %	5.3	0.0	1.2	0.0	-	6.5	1.8	39.2	0.1	0.0	-	41.1	0.2	0.0	0.0	0.0	-	0.2	0.0	46.8	5.3	0.0	-	52.1	-
Lights	825	4	188	0	-	1017	279	6059	20	1	-	6359	25	5	5	0	-	35	7	7144	816	0	-	7967	15378
% Lights	99.2	100.0	98.4	-	-	99.0	98.6	98.4	90.9	100.0	-	98.4	96.2	100.0	100.0	-	-	97.2	100.0	97.2	98.6	-	-	97.3	97.9
Mediums	4	0	3	0	-	7	4	90	2	0	-	96	1	0	0	0	-	1	0	191	12	0	-	203	307
% Mediums	0.5	0.0	1.6	-	-	0.7	1.4	1.5	9.1	0.0	-	1.5	3.8	0.0	0.0	-	-	2.8	0.0	2.6	1.4	-	-	2.5	2.0
Articulated Trucks	3	0	0	0	-	3	0	9	0	0	-	9	0	0	0	0	-	0	0	13	0	0	-	13	25
% Articulated Trucks	0.4	0.0	0.0	-	-	0.3	0.0	0.1	0.0	0.0	-	0.1	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	2	0	0	-	2	2
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	14.3	-	-	-	-	-	0.0	-	-	-	-	-	7.4	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	12	-	-	-	-	-	3	-	-	-	-	-	25	-	-	-	-	-	2	-	-
% Pedestrians	-	-	-	-	85.7	-	-	-	-	-	100.0	-	-	-	-	-	92.6	-	-	-	-	-	100.0	-	-

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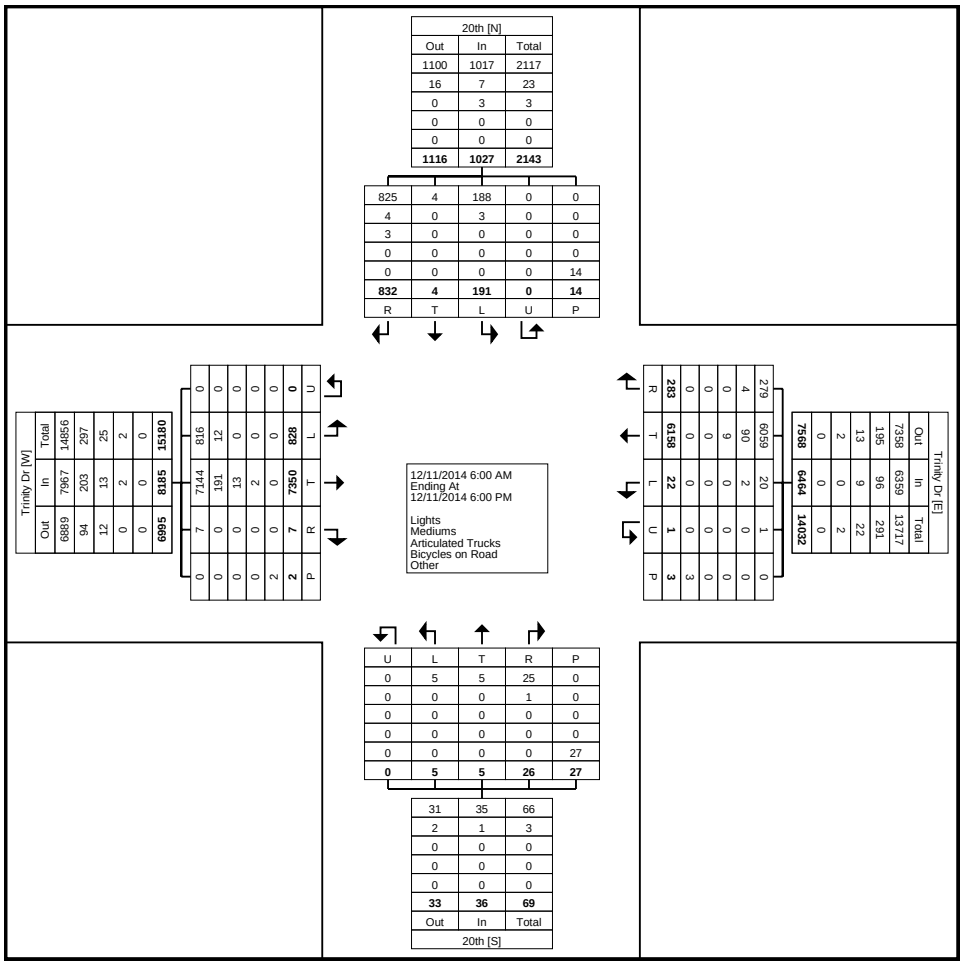
Count Name: Trinity Dr./20th
Site Code:
Start Date: 12/11/2014



Turning Movement Data Plot

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3721 Rutledge Rd. NE
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Count Name: Trinity Dr./20th
Site Code:
Start Date: 12/11/2014

Turning Movement Peak Hour Data (11:00 AM)

Start Time	20th Southbound						Trinity Dr Westbound						20th Northbound						Trinity Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
11:00 AM	18	0	2	0	0	20	8	126	1	0	0	135	0	0	0	0	0	0	0	177	26	0	0	203	358
11:15 AM	24	0	5	0	0	29	7	121	0	0	0	128	1	0	0	0	1	1	1	253	38	0	0	292	450
11:30 AM	27	0	7	0	1	34	13	153	2	0	0	168	1	0	0	0	3	1	0	254	33	0	0	287	490
11:45 AM	30	0	6	0	1	36	10	161	0	0	0	171	1	0	0	0	1	1	0	251	41	0	0	292	500
Total	99	0	20	0	2	119	38	561	3	0	0	602	3	0	0	0	5	3	1	935	138	0	0	1074	1798
Approach %	83.2	0.0	16.8	0.0	-	-	6.3	93.2	0.5	0.0	-	-	100.0	0.0	0.0	0.0	-	-	0.1	87.1	12.8	0.0	-	-	-
Total %	5.5	0.0	1.1	0.0	-	6.6	2.1	31.2	0.2	0.0	-	33.5	0.2	0.0	0.0	0.0	-	0.2	0.1	52.0	7.7	0.0	-	59.7	-
PHF	0.825	0.000	0.714	0.000	-	0.826	0.731	0.871	0.375	0.000	-	0.880	0.750	0.000	0.000	0.000	-	0.750	0.250	0.920	0.841	0.000	-	0.920	0.899
Lights	97	0	20	0	-	117	37	554	2	0	-	593	2	0	0	0	-	2	1	916	138	0	-	1055	1767
% Lights	98.0	-	100.0	-	-	98.3	97.4	98.8	66.7	-	-	98.5	66.7	-	-	-	-	66.7	100.0	98.0	100.0	-	-	98.2	98.3
Mediums	1	0	0	0	-	1	1	6	1	0	-	8	1	0	0	0	-	1	0	17	0	0	-	17	27
% Mediums	1.0	-	0.0	-	-	0.8	2.6	1.1	33.3	-	-	1.3	33.3	-	-	-	-	33.3	0.0	1.8	0.0	-	-	1.6	1.5
Articulated Trucks	1	0	0	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	0	2	0	0	-	2	4
% Articulated Trucks	1.0	-	0.0	-	-	0.8	0.0	0.2	0.0	-	-	0.2	0.0	-	-	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	5	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

CH2M HILL : Albuquerque
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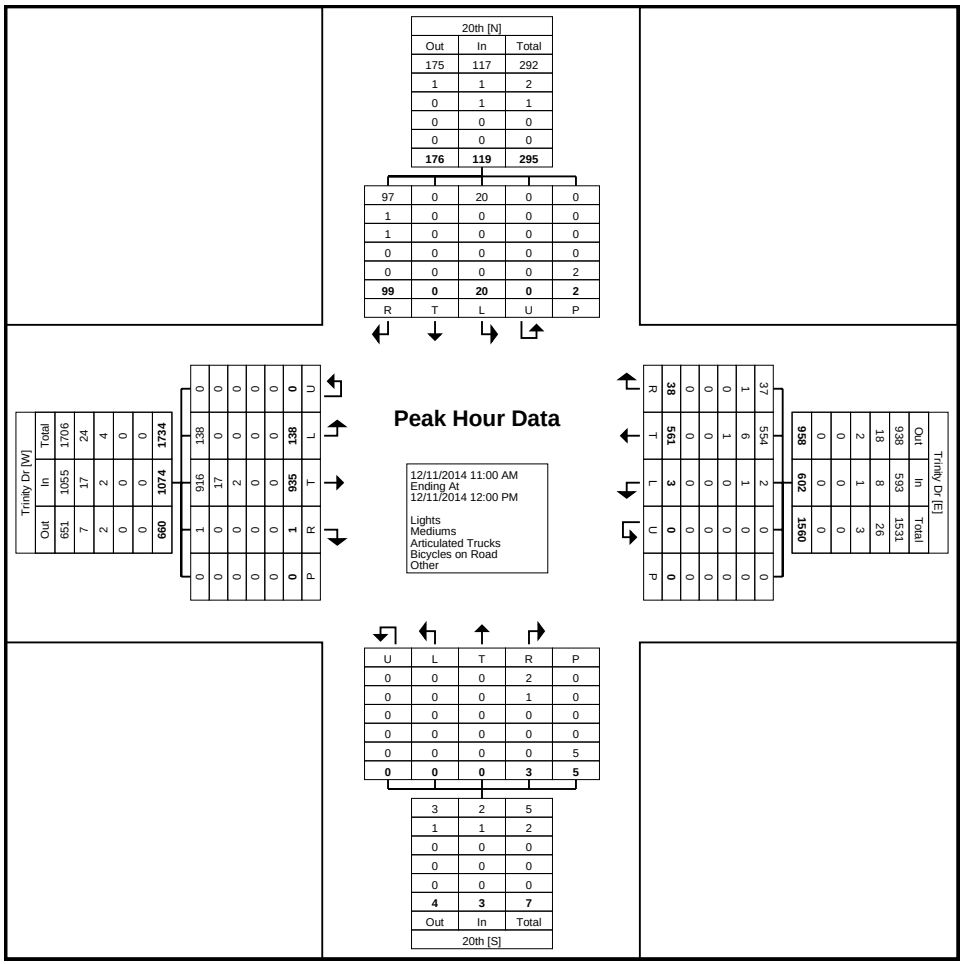
Count Name: Trinity Dr./20th
Site Code:
Start Date: 12/11/2014



Turning Movement Peak Hour Data Plot (11:00 AM)

CH2M HILL : Albuquerque
3721 Rutledge Rd. NE
Suite B-1
Albuquerque, New Mexico, United States 87109
505.884.5600 clay.koontz@ch2m.com

Count Name: Trinity Dr./20th
Site Code:
Start Date: 12/11/2014

Turning Movement Peak Hour Data (12:00 PM)

Start Time	20th Southbound						Trinity Dr Westbound						20th Northbound						Trinity Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
12:00 PM	39	0	5	0	0	44	12	190	2	0	0	204	0	0	0	0	0	0	0	243	39	0	0	282	530
12:15 PM	40	0	5	0	0	45	7	183	0	0	0	190	0	0	1	0	0	1	0	192	30	0	0	222	458
12:30 PM	35	0	4	0	0	39	7	197	1	1	0	206	2	0	0	0	0	2	0	125	18	0	0	143	390
12:45 PM	28	0	6	0	0	34	6	219	1	0	0	226	1	0	0	0	0	1	0	158	18	0	0	176	437
Total	142	0	20	0	0	162	32	789	4	1	0	826	3	0	1	0	0	4	0	718	105	0	0	823	1815
Approach %	87.7	0.0	12.3	0.0	-	-	3.9	95.5	0.5	0.1	-	-	75.0	0.0	25.0	0.0	-	-	0.0	87.2	12.8	0.0	-	-	-
Total %	7.8	0.0	1.1	0.0	-	8.9	1.8	43.5	0.2	0.1	-	45.5	0.2	0.0	0.1	0.0	-	0.2	0.0	39.6	5.8	0.0	-	45.3	-
PHF	0.888	0.000	0.833	0.000	-	0.900	0.667	0.901	0.500	0.250	-	0.914	0.375	0.000	0.250	0.000	-	0.500	0.000	0.739	0.673	0.000	-	0.730	0.856
Lights	140	0	19	0	-	159	31	781	4	1	-	817	3	0	1	0	-	4	0	707	105	0	-	812	1792
% Lights	98.6	-	95.0	-	-	98.1	96.9	99.0	100.0	100.0	-	98.9	100.0	-	100.0	-	-	100.0	-	98.5	100.0	-	-	98.7	98.7
Mediums	1	0	1	0	-	2	1	6	0	0	-	7	0	0	0	0	-	0	0	6	0	0	-	6	15
% Mediums	0.7	-	5.0	-	-	1.2	3.1	0.8	0.0	0.0	-	0.8	0.0	-	0.0	-	-	0.0	-	0.8	0.0	-	-	0.7	0.8
Articulated Trucks	1	0	0	0	-	1	0	2	0	0	-	2	0	0	0	0	-	0	0	4	0	0	-	4	7
% Articulated Trucks	0.7	-	0.0	-	-	0.6	0.0	0.3	0.0	0.0	-	0.2	0.0	-	0.0	-	-	0.0	-	0.6	0.0	-	-	0.5	0.4
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	-	0.0	-	0.1	0.0	-	-	0.1	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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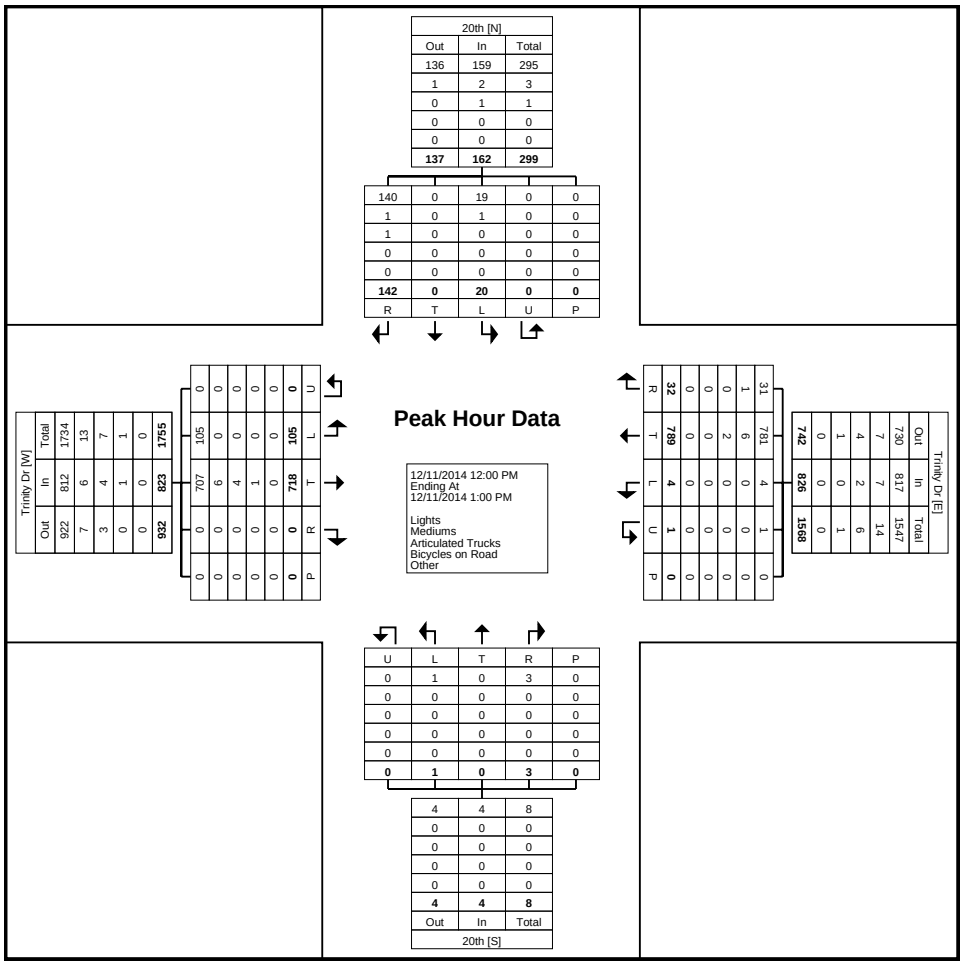
Site Code:
Start Date: 12/11/2014



Turning Movement Peak Hour Data Plot (12:00 PM)

CH2M HILL : Albuquerque
3721 Rutledge Rd. NE
Suite B-1
Albuquerque, New Mexico, United States 87109
505.884.5600 clay.koontz@ch2m.com

Count Name: Trinity Dr./15th
Site Code:
Start Date: 12/11/2014

Turning Movement Data

Start Time	15th Southbound						Trinity Dr Westbound						15th Northbound						Trinity Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
6:00 AM	4	0	2	0	0	6	0	30	0	1	0	31	0	0	0	0	0	0	0	30	1	0	0	31	68
6:15 AM	6	0	2	0	0	8	0	60	0	0	0	60	0	0	0	0	0	0	0	38	1	0	0	39	107
6:30 AM	8	0	1	0	0	9	1	68	0	0	0	69	0	0	0	0	0	0	0	56	3	0	0	59	137
6:45 AM	11	0	6	0	0	17	7	103	0	0	0	110	0	0	0	0	0	0	0	47	3	0	0	50	177
Hourly Total	29	0	11	0	0	40	8	261	0	1	0	270	0	0	0	0	0	0	0	171	8	0	0	179	489
7:00 AM	11	0	5	0	0	16	5	125	0	0	0	130	0	0	0	0	0	0	0	87	6	0	0	93	239
7:15 AM	8	0	8	0	0	16	2	133	0	0	0	135	0	0	0	0	0	0	0	77	6	0	0	83	234
7:30 AM	14	0	10	0	0	24	5	120	0	0	0	125	0	0	0	0	1	0	0	99	12	0	0	111	260
7:45 AM	22	0	12	0	1	34	6	140	0	0	0	146	0	0	0	0	0	0	0	126	14	0	0	140	320
Hourly Total	55	0	35	0	1	90	18	518	0	0	0	536	0	0	0	0	1	0	0	389	38	0	0	427	1053
8:00 AM	16	0	8	0	0	24	6	99	0	0	0	105	0	0	0	0	0	0	0	114	18	0	0	132	261
8:15 AM	12	0	16	0	1	28	9	106	0	0	0	115	0	0	1	0	0	1	0	115	9	0	0	124	268
8:30 AM	9	0	12	0	0	21	5	94	0	0	0	99	0	0	0	0	0	0	0	119	12	0	0	131	251
8:45 AM	17	0	26	0	0	43	9	109	0	0	0	118	0	0	0	0	0	0	0	99	22	0	2	121	282
Hourly Total	54	0	62	0	1	116	29	408	0	0	0	437	0	0	1	0	0	1	0	447	61	0	2	508	1062
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
11:00 AM	23	0	19	0	0	42	19	116	0	0	0	135	0	0	0	0	0	0	0	137	28	0	0	165	342
11:15 AM	18	0	35	0	1	53	22	107	0	0	0	129	0	0	0	0	1	0	0	209	39	0	2	248	430
11:30 AM	25	0	31	0	2	56	14	145	1	1	0	161	0	0	0	0	1	0	0	217	41	0	1	258	475
11:45 AM	30	0	31	0	2	61	17	140	0	0	1	157	3	0	1	0	1	4	1	215	33	0	0	249	471
Hourly Total	96	0	116	0	5	212	72	508	1	1	1	582	3	0	1	0	3	4	1	778	141	0	3	920	1718
12:00 PM	32	1	48	0	1	81	20	168	1	0	0	189	0	1	0	0	2	1	0	203	36	0	2	239	510
12:15 PM	31	0	50	0	0	81	17	156	0	0	1	173	0	0	2	0	1	2	0	153	33	0	2	186	442
12:30 PM	34	0	36	0	2	70	23	179	0	0	0	202	0	0	2	0	0	2	1	123	19	0	1	143	417
12:45 PM	42	0	35	0	1	77	15	173	0	0	1	188	0	0	0	0	1	0	0	133	28	0	0	161	426
Hourly Total	139	1	169	0	4	309	75	676	1	0	2	752	0	1	4	0	4	5	1	612	116	0	5	729	1795
1:00 PM	30	0	34	0	0	64	14	159	0	0	0	173	0	1	0	0	0	1	0	123	16	0	0	139	377
1:15 PM	31	0	30	0	0	61	12	155	0	0	0	167	0	0	0	0	0	0	0	123	18	0	0	141	369
1:30 PM	26	0	31	0	0	57	22	135	0	0	0	157	0	0	1	0	0	1	0	123	20	0	0	143	358
1:45 PM	28	0	22	0	0	50	14	144	1	1	0	160	2	0	0	0	0	2	1	116	15	0	0	132	344
Hourly Total	115	0	117	0	0	232	62	593	1	1	0	657	2	1	1	0	0	4	1	485	69	0	0	555	1448
*** BREAK ***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3:00 PM	16	0	24	0	0	40	13	118	0	0	1	131	0	0	0	0	2	0	0	142	18	0	0	160	331
3:15 PM	11	0	34	0	0	45	7	89	0	0	0	96	0	0	0	0	0	0	0	152	15	0	0	167	308
3:30 PM	18	0	27	0	0	45	15	113	0	0	0	128	0	0	1	0	2	1	0	179	21	0	2	200	374
3:45 PM	16	0	26	0	0	42	12	86	4	0	0	102	0	1	1	0	2	2	1	170	11	0	4	182	328
Hourly Total	61	0	111	0	0	172	47	406	4	0	1	457	0	1	2	0	6	3	1	643	65	0	6	709	1341
4:00 PM	10	0	42	0	0	52	13	117	1	0	0	131	0	0	2	0	3	2	0	220	22	0	2	242	427
4:15 PM	18	0	35	0	0	53	9	122	0	0	2	131	0	0	0	0	0	0	0	207	18	0	0	225	409
4:30 PM	11	1	53	0	0	65	5	104	1	0	0	110	1	0	0	0	0	1	0	243	23	0	0	266	442

4:45 PM	13	0	47	0	0	60	6	126	0	0	1	132	0	0	0	0	0	0	0	226	20	0	0	246	438
Hourly Total	52	1	177	0	0	230	33	469	2	0	3	504	1	0	2	0	3	3	0	896	83	0	2	979	1716
5:00 PM	18	0	65	0	0	83	9	140	2	0	0	151	1	1	0	0	3	2	0	236	26	0	1	262	498
5:15 PM	15	1	43	0	0	59	16	137	0	0	1	153	0	0	0	0	1	0	1	205	30	0	0	236	448
5:30 PM	11	1	28	0	0	40	8	137	2	0	0	147	0	0	0	0	1	0	0	182	32	0	0	214	401
5:45 PM	12	1	29	0	0	42	2	145	1	0	0	148	1	0	0	0	0	1	0	172	17	0	0	189	380
Hourly Total	56	3	165	0	0	224	35	559	5	0	1	599	2	1	0	0	5	3	1	795	105	0	1	901	1727
Grand Total	657	5	963	0	11	1625	379	4398	14	3	8	4794	8	4	11	0	22	23	5	5216	686	0	19	5907	12349
Approach %	40.4	0.3	59.3	0.0	-	-	7.9	91.7	0.3	0.1	-	-	34.8	17.4	47.8	0.0	-	-	0.1	88.3	11.6	0.0	-	-	-
Total %	5.3	0.0	7.8	0.0	-	13.2	3.1	35.6	0.1	0.0	-	38.8	0.1	0.0	0.1	0.0	-	0.2	0.0	42.2	5.6	0.0	-	47.8	-
Lights	652	5	949	0	-	1606	374	4333	14	3	-	4724	7	3	10	0	-	20	5	5088	660	0	-	5753	12103
% Lights	99.2	100.0	98.5	-	-	98.8	98.7	98.5	100.0	100.0	-	98.5	87.5	75.0	90.9	-	-	87.0	100.0	97.5	96.2	-	-	97.4	98.0
Mediums	4	0	12	0	-	16	4	57	0	0	-	61	1	1	0	0	-	2	0	118	25	0	-	143	222
% Mediums	0.6	0.0	1.2	-	-	1.0	1.1	1.3	0.0	0.0	-	1.3	12.5	25.0	0.0	-	-	8.7	0.0	2.3	3.6	-	-	2.4	1.8
Articulated Trucks	1	0	2	0	-	3	0	7	0	0	-	7	0	0	1	0	-	1	0	9	1	0	-	10	21
% Articulated Trucks	0.2	0.0	0.2	-	-	0.2	0.0	0.2	0.0	0.0	-	0.1	0.0	0.0	9.1	-	-	4.3	0.0	0.2	0.1	-	-	0.2	0.2
Bicycles on Road	0	0	0	0	-	0	1	1	0	0	-	2	0	0	0	0	-	0	0	1	0	0	-	1	3
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.3	0.0	0.0	0.0	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	12.5	-	-	-	-	-	4.5	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	11	-	-	-	-	-	7	-	-	-	-	-	21	-	-	-	-	-	19	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	87.5	-	-	-	-	-	95.5	-	-	-	-	-	100.0	-	-

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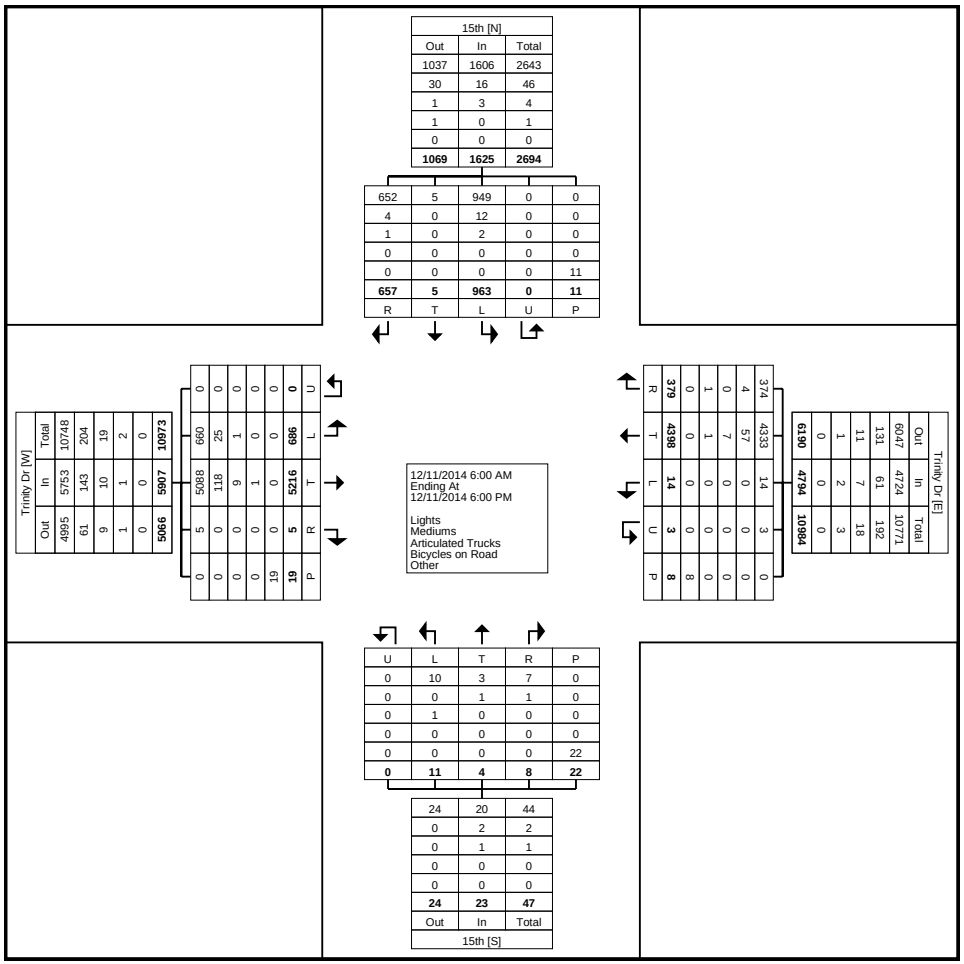
Count Name: Trinity Dr./15th
Site Code:
Start Date: 12/11/2014



Turning Movement Data Plot

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Count Name: Trinity Dr./15th
Site Code:
Start Date: 12/11/2014

Turning Movement Peak Hour Data (7:30 AM)

Start Time	15th Southbound						Trinity Dr Westbound						15th Northbound						Trinity Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
7:30 AM	14	0	10	0	0	24	5	120	0	0	0	125	0	0	0	0	1	0	0	99	12	0	0	111	260
7:45 AM	22	0	12	0	1	34	6	140	0	0	0	146	0	0	0	0	0	0	0	126	14	0	0	140	320
8:00 AM	16	0	8	0	0	24	6	99	0	0	0	105	0	0	0	0	0	0	0	114	18	0	0	132	261
8:15 AM	12	0	16	0	1	28	9	106	0	0	0	115	0	0	1	0	0	1	0	115	9	0	0	124	268
Total	64	0	46	0	2	110	26	465	0	0	0	491	0	0	1	0	1	1	0	454	53	0	0	507	1109
Approach %	58.2	0.0	41.8	0.0	-	-	5.3	94.7	0.0	0.0	-	-	0.0	0.0	100.0	0.0	-	-	0.0	89.5	10.5	0.0	-	-	-
Total %	5.8	0.0	4.1	0.0	-	9.9	2.3	41.9	0.0	0.0	-	44.3	0.0	0.0	0.1	0.0	-	0.1	0.0	40.9	4.8	0.0	-	45.7	-
PHF	0.727	0.000	0.719	0.000	-	0.809	0.722	0.830	0.000	0.000	-	0.841	0.000	0.000	0.250	0.000	-	0.250	0.000	0.901	0.736	0.000	-	0.905	0.866
Lights	64	0	45	0	-	109	26	453	0	0	-	479	0	0	1	0	-	1	0	440	49	0	-	489	1078
% Lights	100.0	-	97.8	-	-	99.1	100.0	97.4	-	-	-	97.6	-	-	100.0	-	-	100.0	-	96.9	92.5	-	-	96.4	97.2
Mediums	0	0	1	0	-	1	0	11	0	0	-	11	0	0	0	0	-	0	0	14	4	0	-	18	30
% Mediums	0.0	-	2.2	-	-	0.9	0.0	2.4	-	-	-	2.2	-	-	0.0	-	-	0.0	-	3.1	7.5	-	-	3.6	2.7
Articulated Trucks	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Articulated Trucks	0.0	-	0.0	-	-	0.0	0.0	0.2	-	-	-	0.2	-	-	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	0.1
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	-	-	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-	-
Pedestrians	-	-	-	-	2	-	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-	-

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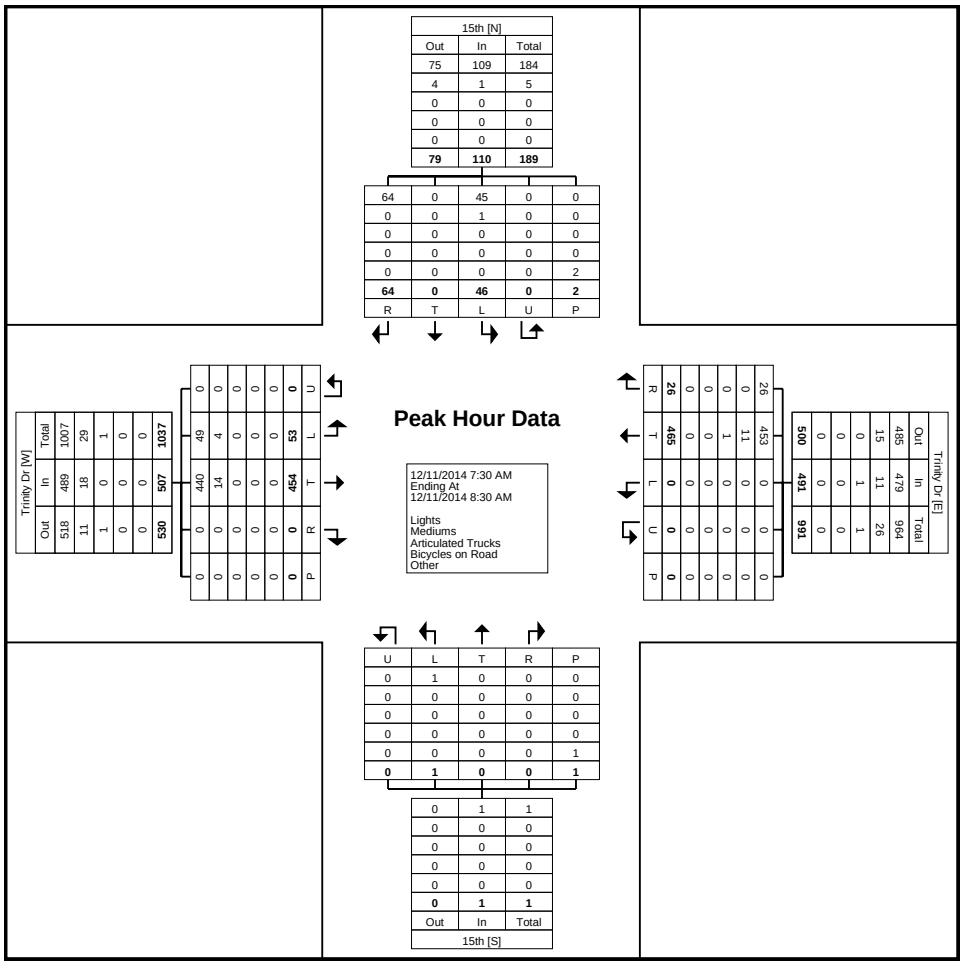

Turning Movement Peak Hour Data Plot (7:30 AM)

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Count Name: Trinity Dr./15th
Site Code:
Start Date: 12/11/2014

Turning Movement Peak Hour Data (11:00 AM)

Start Time	15th Southbound						Trinity Dr Westbound						15th Northbound						Trinity Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
11:00 AM	23	0	19	0	0	42	19	116	0	0	0	135	0	0	0	0	0	0	0	137	28	0	0	165	342
11:15 AM	18	0	35	0	1	53	22	107	0	0	0	129	0	0	0	0	1	0	0	209	39	0	2	248	430
11:30 AM	25	0	31	0	2	56	14	145	1	1	0	161	0	0	0	0	1	0	0	217	41	0	1	258	475
11:45 AM	30	0	31	0	2	61	17	140	0	0	1	157	3	0	1	0	1	4	1	215	33	0	0	249	471
Total	96	0	116	0	5	212	72	508	1	1	1	582	3	0	1	0	3	4	1	778	141	0	3	920	1718
Approach %	45.3	0.0	54.7	0.0	-	-	12.4	87.3	0.2	0.2	-	-	75.0	0.0	25.0	0.0	-	-	0.1	84.6	15.3	0.0	-	-	-
Total %	5.6	0.0	6.8	0.0	-	12.3	4.2	29.6	0.1	0.1	-	33.9	0.2	0.0	0.1	0.0	-	0.2	0.1	45.3	8.2	0.0	-	53.6	-
PHF	0.800	0.000	0.829	0.000	-	0.869	0.818	0.876	0.250	0.250	-	0.904	0.250	0.000	0.250	0.000	-	0.250	0.250	0.896	0.860	0.000	-	0.891	0.904
Lights	94	0	111	0	-	205	71	503	1	1	-	576	3	0	1	0	-	4	1	760	138	0	-	899	1684
% Lights	97.9	-	95.7	-	-	96.7	98.6	99.0	100.0	100.0	-	99.0	100.0	-	100.0	-	-	100.0	100.0	97.7	97.9	-	-	97.7	98.0
Mediums	2	0	4	0	-	6	1	4	0	0	-	5	0	0	0	0	-	0	0	17	2	0	-	19	30
% Mediums	2.1	-	3.4	-	-	2.8	1.4	0.8	0.0	0.0	-	0.9	0.0	-	0.0	-	-	0.0	0.0	2.2	1.4	-	-	2.1	1.7
Articulated Trucks	0	0	1	0	-	1	0	1	0	0	-	1	0	0	0	0	-	0	0	1	1	0	-	2	4
% Articulated Trucks	0.0	-	0.9	-	-	0.5	0.0	0.2	0.0	0.0	-	0.2	0.0	-	0.0	-	-	0.0	0.0	0.1	0.7	-	-	0.2	0.2
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	0.0	-	0.0	0.0	-	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	1	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	100.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	5	-	-	-	-	-	0	-	-	-	-	-	3	-	-	-	-	-	3	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	0.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

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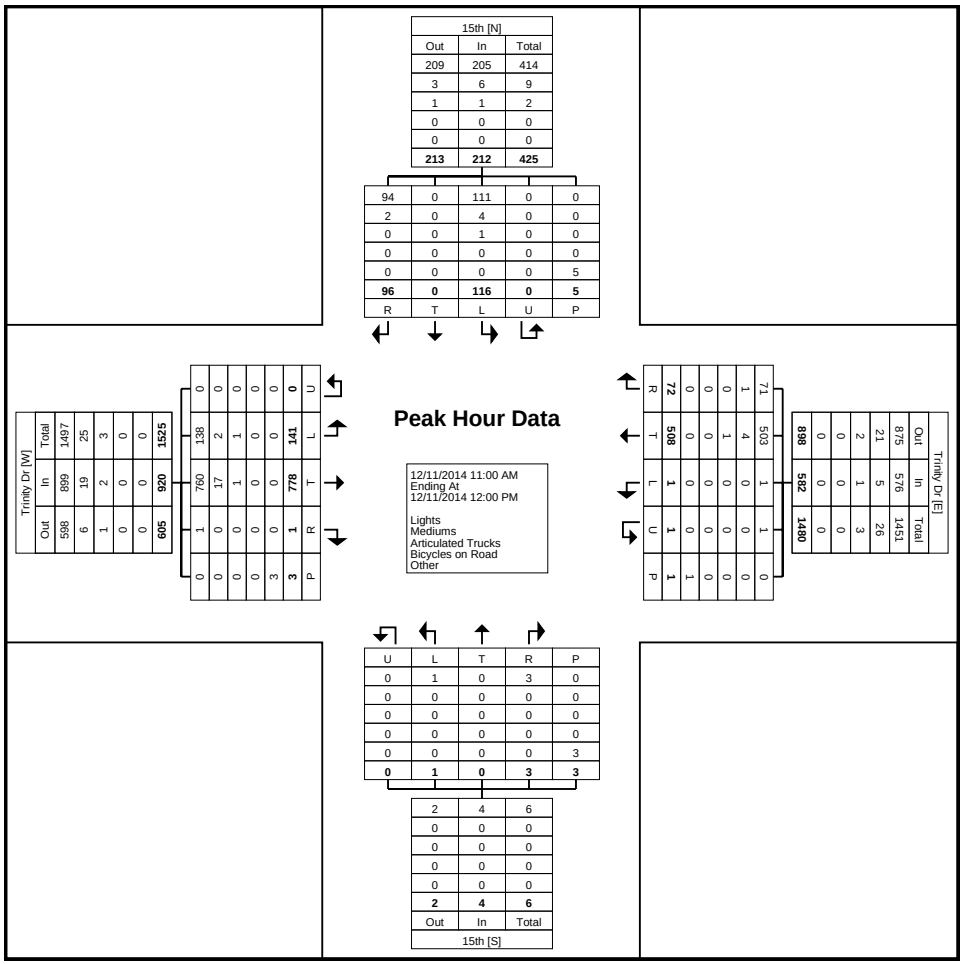

Turning Movement Peak Hour Data Plot (11:00 AM)

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Count Name: Trinity Dr./15th
Site Code:
Start Date: 12/11/2014

Turning Movement Peak Hour Data (12:00 PM)

Start Time	15th Southbound						Trinity Dr Westbound						15th Northbound						Trinity Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
12:00 PM	32	1	48	0	1	81	20	168	1	0	0	189	0	1	0	0	2	1	0	203	36	0	2	239	510
12:15 PM	31	0	50	0	0	81	17	156	0	0	1	173	0	0	2	0	1	2	0	153	33	0	2	186	442
12:30 PM	34	0	36	0	2	70	23	179	0	0	0	202	0	0	2	0	0	2	1	123	19	0	1	143	417
12:45 PM	42	0	35	0	1	77	15	173	0	0	1	188	0	0	0	0	1	0	0	133	28	0	0	161	426
Total	139	1	169	0	4	309	75	676	1	0	2	752	0	1	4	0	4	5	1	612	116	0	5	729	1795
Approach %	45.0	0.3	54.7	0.0	-	-	10.0	89.9	0.1	0.0	-	-	0.0	20.0	80.0	0.0	-	-	0.1	84.0	15.9	0.0	-	-	-
Total %	7.7	0.1	9.4	0.0	-	17.2	4.2	37.7	0.1	0.0	-	41.9	0.0	0.1	0.2	0.0	-	0.3	0.1	34.1	6.5	0.0	-	40.6	-
PHF	0.827	0.250	0.845	0.000	-	0.954	0.815	0.944	0.250	0.000	-	0.931	0.000	0.250	0.500	0.000	-	0.625	0.250	0.754	0.806	0.000	-	0.763	0.880
Lights	139	1	168	0	-	308	74	665	1	0	-	740	0	1	3	0	-	4	1	599	116	0	-	716	1768
% Lights	100.0	100.0	99.4	-	-	99.7	98.7	98.4	100.0	-	-	98.4	-	100.0	75.0	-	-	80.0	100.0	97.9	100.0	-	-	98.2	98.5
Mediums	0	0	1	0	-	1	1	10	0	0	-	11	0	0	0	0	-	0	0	8	0	0	-	8	20
% Mediums	0.0	0.0	0.6	-	-	0.3	1.3	1.5	0.0	-	-	1.5	-	0.0	0.0	-	-	0.0	0.0	1.3	0.0	-	-	1.1	1.1
Articulated Trucks	0	0	0	0	-	0	0	1	0	0	-	1	0	0	1	0	-	1	0	4	0	0	-	4	6
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.1	0.0	-	-	0.1	-	0.0	25.0	-	-	20.0	0.0	0.7	0.0	-	-	0.5	0.3
Bicycles on Road	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	-	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.1	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	4	-	-	-	-	-	2	-	-	-	-	-	4	-	-	-	-	-	5	-	-
% Pedestrians	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

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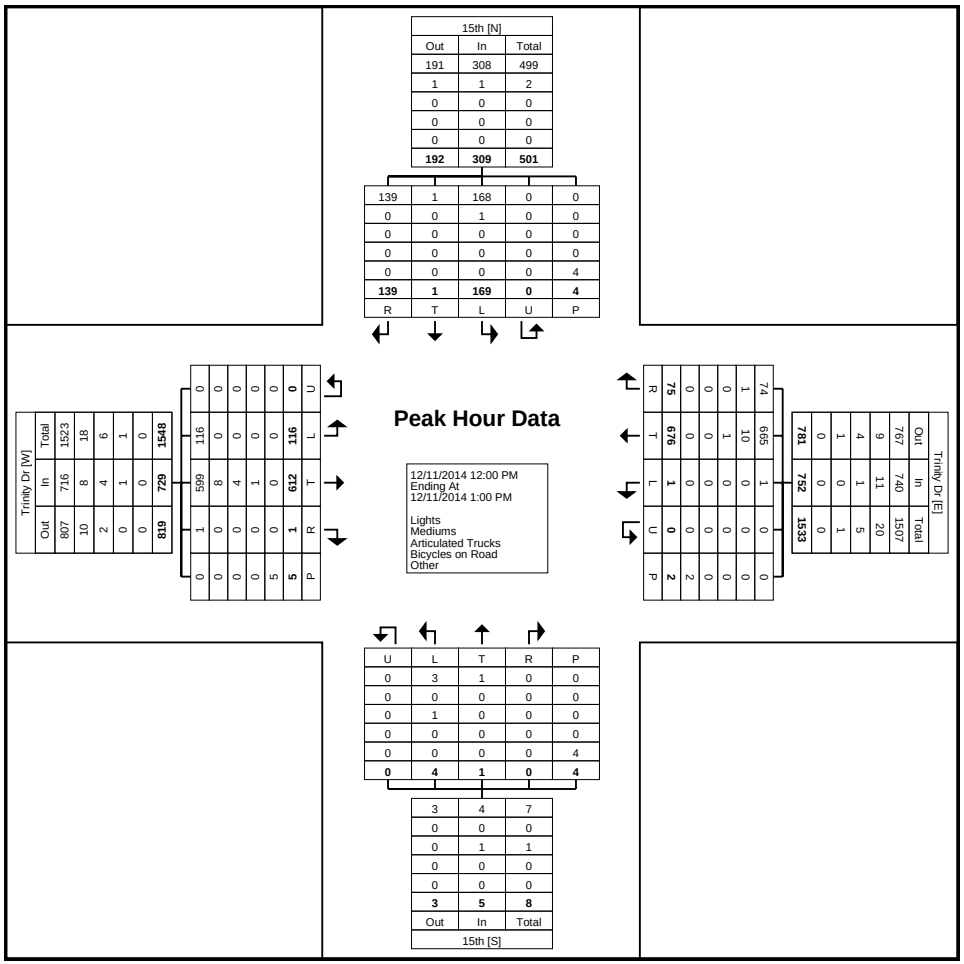

Turning Movement Peak Hour Data Plot (12:00 PM)

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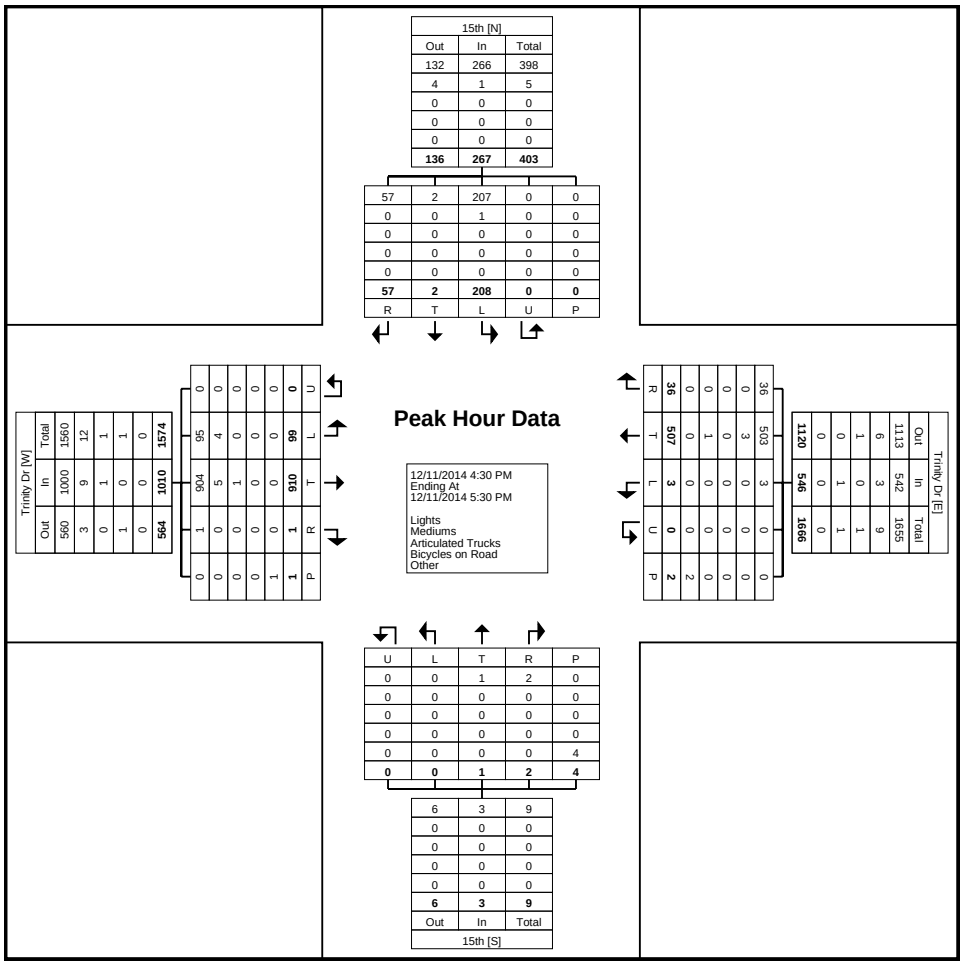
Count Name: Trinity Dr./15th
Site Code:
Start Date: 12/11/2014

Turning Movement Peak Hour Data (4:30 PM)

Start Time	15th Southbound						Trinity Dr Westbound						15th Northbound						Trinity Dr Eastbound						Int. Total
	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	Right	Thru	Left	U-Turn	Peds	App. Total	
4:30 PM	11	1	53	0	0	65	5	104	1	0	0	110	1	0	0	0	0	1	0	243	23	0	0	266	442
4:45 PM	13	0	47	0	0	60	6	126	0	0	1	132	0	0	0	0	0	0	0	226	20	0	0	246	438
5:00 PM	18	0	65	0	0	83	9	140	2	0	0	151	1	1	0	0	3	2	0	236	26	0	1	262	498
5:15 PM	15	1	43	0	0	59	16	137	0	0	1	153	0	0	0	0	1	0	1	205	30	0	0	236	448
Total	57	2	208	0	0	267	36	507	3	0	2	546	2	1	0	0	4	3	1	910	99	0	1	1010	1826
Approach %	21.3	0.7	77.9	0.0	-	-	6.6	92.9	0.5	0.0	-	-	66.7	33.3	0.0	0.0	-	-	0.1	90.1	9.8	0.0	-	-	-
Total %	3.1	0.1	11.4	0.0	-	14.6	2.0	27.8	0.2	0.0	-	29.9	0.1	0.1	0.0	0.0	-	0.2	0.1	49.8	5.4	0.0	-	55.3	-
PHF	0.792	0.500	0.800	0.000	-	0.804	0.563	0.905	0.375	0.000	-	0.892	0.500	0.250	0.000	0.000	-	0.375	0.250	0.936	0.825	0.000	-	0.949	0.917
Lights	57	2	207	0	-	266	36	503	3	0	-	542	2	1	0	0	-	3	1	904	95	0	-	1000	1811
% Lights	100.0	100.0	99.5	-	-	99.6	100.0	99.2	100.0	-	-	99.3	100.0	100.0	-	-	-	100.0	100.0	99.3	96.0	-	-	99.0	99.2
Mediums	0	0	1	0	-	1	0	3	0	0	-	3	0	0	0	0	-	0	0	5	4	0	-	9	13
% Mediums	0.0	0.0	0.5	-	-	0.4	0.0	0.6	0.0	-	-	0.5	0.0	0.0	-	-	-	0.0	0.0	0.5	4.0	-	-	0.9	0.7
Articulated Trucks	0	0	0	0	-	0	0	0	0	0	-	0	0	0	0	0	-	0	0	1	0	0	-	1	1
% Articulated Trucks	0.0	0.0	0.0	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.0	0.0	-	-	-	0.0	0.0	0.1	0.0	-	-	0.1	0.1
Bicycles on Road	0	0	0	0	-	0	0	1	0	0	-	1	0	0	0	0	-	0	0	0	0	0	-	0	1
% Bicycles on Road	0.0	0.0	0.0	-	-	0.0	0.0	0.2	0.0	-	-	0.2	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	-	0.0	0.1
Bicycles on Crosswalk	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	-	0	-	-	-	-	-	2	-	-	-	-	-	4	-	-	-	-	-	1	-	-
% Pedestrians	-	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-	-	-	-	100.0	-	-

CH2M HILL : Albuquerque
3721 Rutledge Rd. NE
Suite B-1
Albuquerque, New Mexico, United States 87109
505.884.5600 clay.koontz@ch2m.com

Count Name: Trinity Dr./15th
Site Code:
Start Date: 12/11/2014



Turning Movement Peak Hour Data Plot (4:30 PM)

Los Alamos County
101 Camino Entrada
Bldg 1, Rm 216
Los Alamos, New Mexico, United States 87544
505-662-8176
Public Works/Transportation

Count Name: Trinity/20th 10_15
Site Code:
Start Date: 10/27/2015

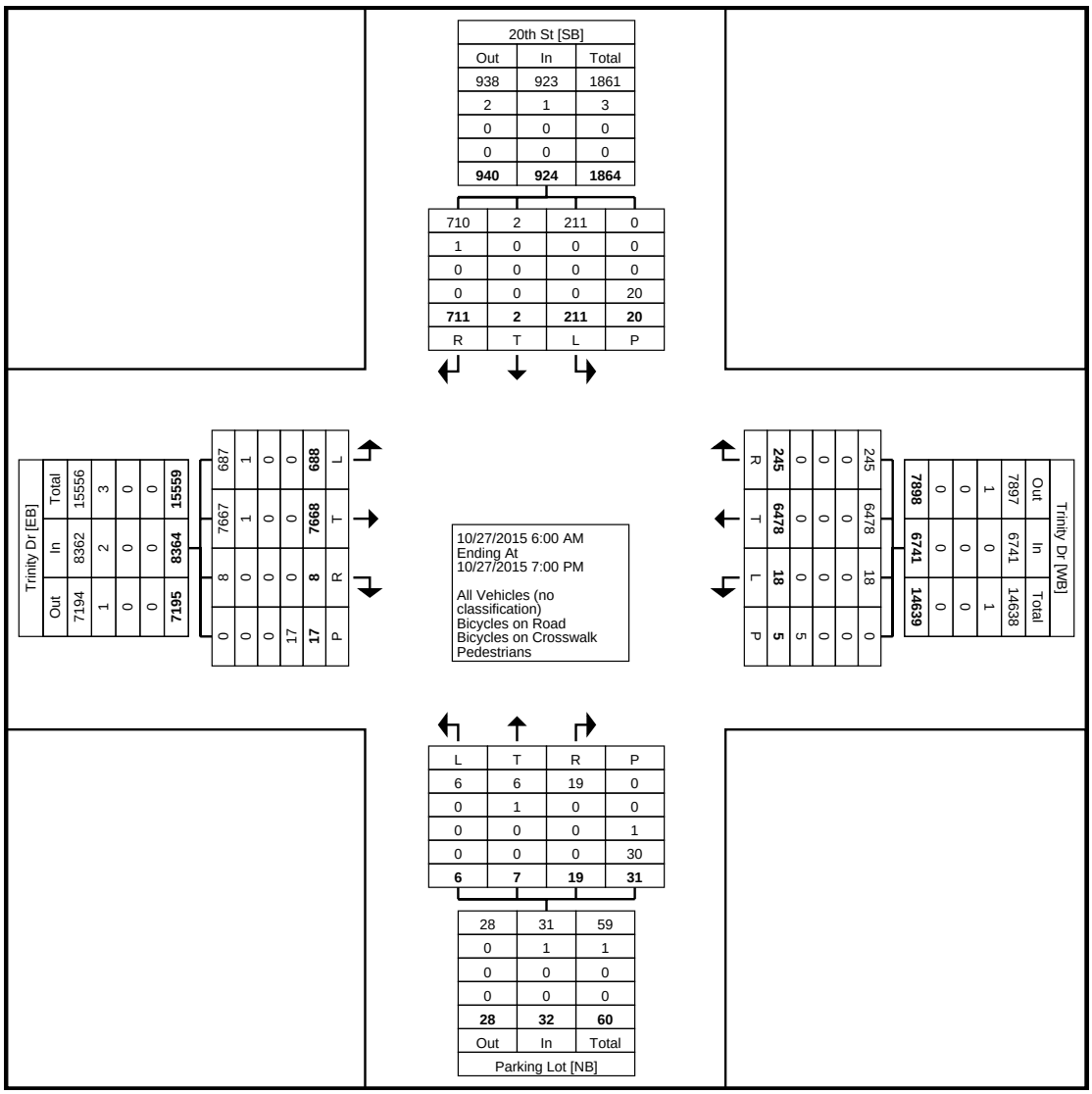
Turning Movement Data

Start Time	20th St Southbound					Trinity Dr Westbound					Parking Lot Northbound					Trinity Dr Eastbound					Int. Total
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	
6:00 AM	5	0	0	0	5	3	43	0	0	46	0	0	0	0	0	0	31	3	0	34	85
6:15 AM	4	0	1	1	5	0	57	0	0	57	0	0	0	0	0	0	44	1	0	45	107
6:30 AM	6	0	1	0	7	2	87	1	0	90	0	0	0	0	0	0	35	4	0	39	136
6:45 AM	5	0	1	0	6	2	104	0	0	106	0	0	0	0	0	0	49	1	0	50	162
Hourly Total	20	0	3	1	23	7	291	1	0	299	0	0	0	0	0	0	159	9	0	168	490
7:00 AM	6	0	1	0	7	3	120	0	0	123	0	0	0	0	0	0	76	6	0	82	212
7:15 AM	16	0	1	0	17	2	116	0	0	118	0	0	0	0	0	0	76	8	0	84	219
7:30 AM	16	0	0	0	16	5	132	0	0	137	0	0	0	0	0	0	100	12	0	112	265
7:45 AM	14	0	2	0	16	6	156	2	0	164	0	0	0	3	0	0	140	13	0	153	333
Hourly Total	52	0	4	0	56	16	524	2	0	542	0	0	0	3	0	0	392	39	0	431	1029
8:00 AM	13	0	2	0	15	2	131	1	0	134	0	0	0	1	0	1	115	6	0	122	271
8:15 AM	12	0	0	1	12	2	112	1	0	115	0	0	1	0	1	0	144	11	0	155	283
8:30 AM	22	0	4	0	26	3	102	0	0	105	0	0	0	1	0	1	115	10	4	126	257
8:45 AM	20	0	2	0	22	4	122	1	0	127	1	0	0	0	1	0	141	17	0	158	308
Hourly Total	67	0	8	1	75	11	467	3	0	481	1	0	1	2	2	2	515	44	4	561	1119
9:00 AM	12	1	3	0	16	2	100	0	0	102	0	3	0	1	3	0	117	6	0	123	244
9:15 AM	12	0	3	0	15	5	73	1	0	79	0	0	1	0	1	0	112	18	0	130	225
9:30 AM	10	0	3	1	13	6	101	0	0	107	0	0	0	0	0	0	106	10	0	116	236
9:45 AM	6	0	5	1	11	6	116	0	0	122	0	0	0	0	0	0	130	17	0	147	280
Hourly Total	40	1	14	2	55	19	390	1	0	410	0	3	1	1	4	0	465	51	0	516	985
10:00 AM	9	0	5	0	14	8	109	1	0	118	0	0	0	0	0	0	130	9	0	139	271
10:15 AM	11	0	5	0	16	2	94	1	0	97	0	0	1	0	1	1	99	16	0	116	230
10:30 AM	15	0	3	0	18	8	98	1	1	107	1	0	0	1	1	0	119	11	0	130	256
10:45 AM	12	0	4	0	16	8	112	1	0	121	0	0	0	0	0	0	148	14	0	162	299
Hourly Total	47	0	17	0	64	26	413	4	1	443	1	0	1	1	2	1	496	50	0	547	1056
11:00 AM	14	0	4	0	18	4	127	0	0	131	0	0	0	0	0	1	160	21	0	182	331
11:15 AM	20	0	6	1	26	6	129	0	0	135	0	0	1	0	1	0	238	26	0	264	426
11:30 AM	19	0	4	1	23	7	178	0	0	185	0	0	0	0	0	0	214	34	0	248	456
11:45 AM	22	0	8	1	30	7	142	1	0	150	0	0	0	1	0	0	210	21	0	231	411
Hourly Total	75	0	22	3	97	24	576	1	0	601	0	0	1	1	1	1	822	102	0	925	1624
12:00 PM	27	0	5	2	32	8	169	0	0	177	0	0	0	2	0	0	220	28	0	248	457
12:15 PM	21	0	5	0	26	7	188	0	0	195	2	0	0	1	2	1	177	20	0	198	421
12:30 PM	25	0	5	2	30	8	186	0	0	194	0	0	0	1	0	0	154	20	0	174	398
12:45 PM	27	0	7	0	34	8	170	0	1	178	0	0	0	0	0	0	188	15	0	203	415
Hourly Total	100	0	22	4	122	31	713	0	1	744	2	0	0	4	2	1	739	83	0	823	1691
1:00 PM	20	0	1	0	21	5	180	0	0	185	0	0	0	0	0	0	129	18	0	147	353
1:15 PM	22	0	3	0	25	11	157	0	0	168	1	0	0	0	1	1	138	20	0	159	353
1:30 PM	16	0	6	0	22	6	136	1	0	143	0	0	0	1	0	0	109	11	0	120	285
1:45 PM	15	0	4	0	19	4	135	0	0	139	0	0	0	0	0	0	161	12	0	173	331
Hourly Total	73	0	14	0	87	26	608	1	0	635	1	0	0	1	1	1	537	61	0	599	1322
2:00 PM	15	0	6	0	21	5	138	0	0	143	1	0	0	0	1	0	120	6	0	126	291
2:15 PM	14	0	3	0	17	4	109	0	0	113	0	0	0	1	0	0	125	7	0	132	262
2:30 PM	9	0	7	1	16	2	137	2	1	141	1	0	0	1	1	0	135	9	0	144	302
2:45 PM	9	0	8	0	17	6	125	0	1	131	0	0	0	1	0	0	143	26	10	169	317
Hourly Total	47	0	24	1	71	17	509	2	2	528	2	0	0	3	2	0	523	48	10	571	1172
3:00 PM	9	1	1	0	11	9	139	0	0	148	2	0	0	2	2	0	131	12	0	143	304
3:15 PM	18	0	6	0	24	3	117	0	0	120	1	0	0	2	1	0	162	14	1	176	321
3:30 PM	9	0	6	0	15	2	106	1	0	109	1	0	0	0	1	1	174	15	0	190	315
3:45 PM	24	0	5	0	29	8	109	0	0	117	0	1	1	1	2	0	207	16	0	223	371
Hourly Total	60	1	18	0	79	22	471	1	0	494	4	1	1	5	6	1	674	57	1	732	1311
4:00 PM	15	0	8	0	23	5	103	0	1	108	1	0	0	0	1	0	237	15	0	252	384
4:15 PM	14	0	5	2	19	3	112	1	0	116	2	1	0	0	3	0	202	14	2	216	354
4:30 PM	11	0	8	1	19	7	111	0	0	118	1	2	0	0	3	0	237	14	0	251	391
4:45 PM	12	0	7	0	19	4	153	0	0	157	0	0	0	2	0	1	229	11	0	241	417
Hourly Total	52	0	28	3	80	19	479	1	1	499	4	3	0	2	7	1	905	54	2	960	1546
5:00 PM	8	0	4	1	12	10	155	1	0	166	2	0	0	2	2	0	246	18	0	264	444
5:15 PM	12	0	3	1	15	5	144	0	0	149	0	0	0	0	0	0	230	20	0	250	414
5:30 PM	8	0	8	0	16	1	121	0	0	122	1	0	0	0	1	0	236	11	0	247	386
5:45 PM	11	0	2	0	13	2	142	0	0	144	1	0	1	1	2	0	185	9	0	194	353
Hourly Total	39	0	17	2	56	18	562	1	0	581	4	0	1	3	5	0	897	58	0	955	1597
6:00 PM	15	0	6	1	21	2	139	0	0	141	0	0	0	2	0	0	142	7	0	149	311

6:15 PM	7	0	3	2	10	3	111	0	0	114	0	0	0	2	0	0	126	9	0	135	259
6:30 PM	9	0	6	0	15	0	114	0	0	114	0	0	0	0	0	0	149	8	0	157	286
6:45 PM	8	0	5	0	13	4	111	0	0	115	0	0	0	1	0	0	127	8	0	135	263
Hourly Total	39	0	20	3	59	9	475	0	0	484	0	0	0	5	0	0	544	32	0	576	1119
Grand Total	711	2	211	20	924	245	6478	18	5	6741	19	7	6	31	32	8	7668	688	17	8364	16061
Approach %	76.9	0.2	22.8	-	-	3.6	96.1	0.3	-	-	59.4	21.9	18.8	-	-	0.1	91.7	8.2	-	-	-
Total %	4.4	0.0	1.3	-	5.8	1.5	40.3	0.1	-	42.0	0.1	0.0	0.0	-	0.2	0.0	47.7	4.3	-	52.1	-
All Vehicles (no classification)	710	2	211	-	923	245	6478	18	-	6741	19	6	6	-	31	8	7667	687	-	8362	16057
% All Vehicles (no classification)	99.9	100.0	100.0	-	99.9	100.0	100.0	100.0	-	100.0	100.0	85.7	100.0	-	96.9	100.0	100.0	99.9	-	100.0	100.0
Bicycles on Road	1	0	0	-	1	0	0	0	-	0	0	1	0	-	1	0	1	1	-	2	4
% Bicycles on Road	0.1	0.0	0.0	-	0.1	0.0	0.0	0.0	-	0.0	0.0	14.3	0.0	-	3.1	0.0	0.0	0.1	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	3.2	-	-	-	-	0.0	-	-
Pedestrians	-	-	-	20	-	-	-	-	5	-	-	-	-	30	-	-	-	-	17	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	96.8	-	-	-	-	100.0	-	-

Los Alamos County
101 Camino Entrada
Bldg 1, Rm 216
Los Alamos, New Mexico, United States 87544
505-662-8176
Public Works/Transportation

Count Name: Trinity/20th 10_15
Site Code:
Start Date: 10/27/2015



Turning Movement Data Plot

Los Alamos County
101 Camino Entrada
Bldg 1, Rm 216
Los Alamos, New Mexico, United States 87544
505-662-8176
Public Works/Transportation

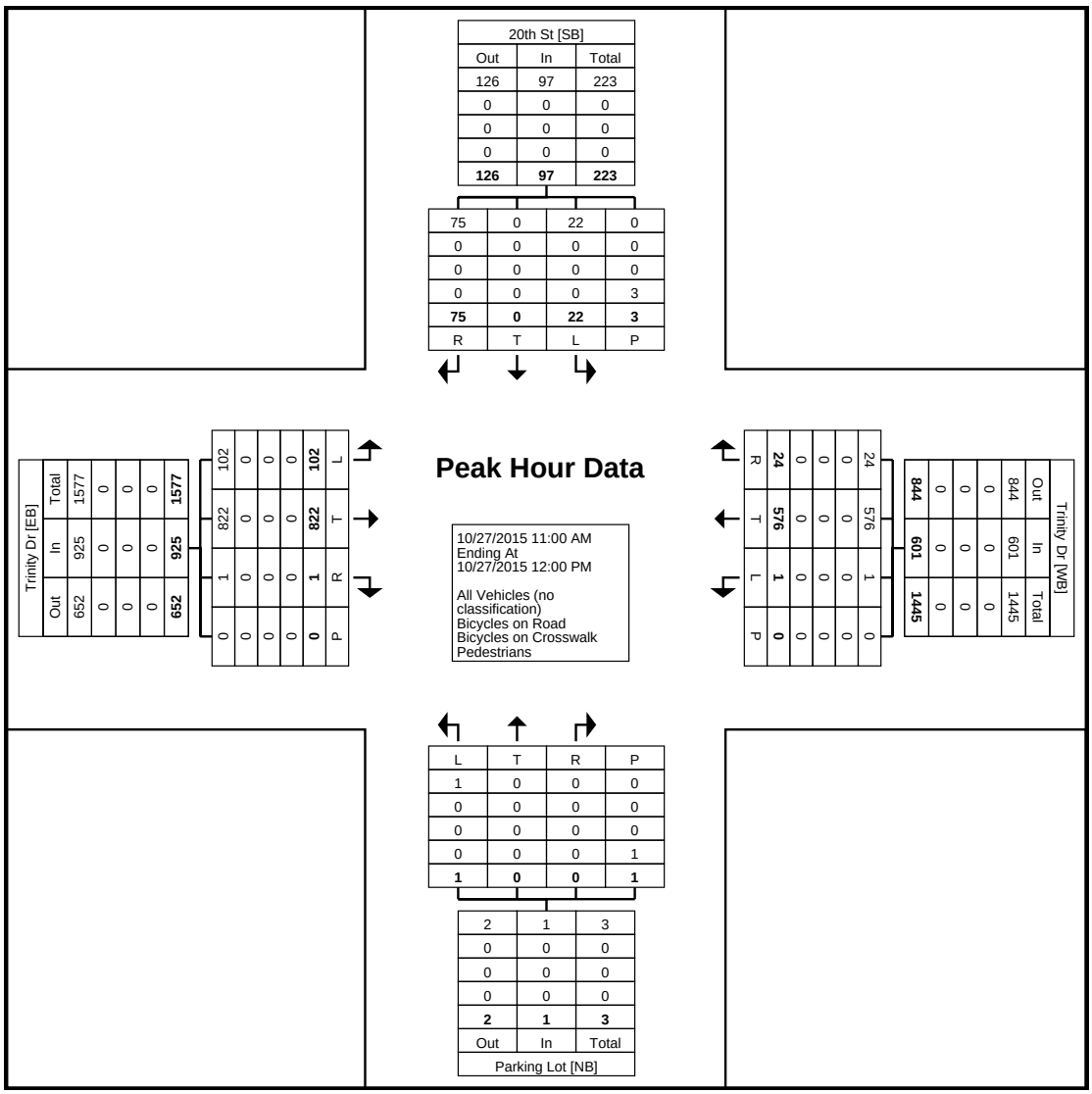
Count Name: Trinity/20th 10_15
Site Code:
Start Date: 10/27/2015

Turning Movement Peak Hour Data (11:00 AM)

Start Time	20th St Southbound					Trinity Dr Westbound					Parking Lot Northbound					Trinity Dr Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
11:00 AM	14	0	4	0	18	4	127	0	0	131	0	0	0	0	0	1	160	21	0	182	331
11:15 AM	20	0	6	1	26	6	129	0	0	135	0	0	1	0	1	0	238	26	0	264	426
11:30 AM	19	0	4	1	23	7	178	0	0	185	0	0	0	0	0	0	214	34	0	248	456
11:45 AM	22	0	8	1	30	7	142	1	0	150	0	0	0	1	0	0	210	21	0	231	411
Total	75	0	22	3	97	24	576	1	0	601	0	0	1	1	1	1	822	102	0	925	1624
Approach %	77.3	0.0	22.7	-	-	4.0	95.8	0.2	-	-	0.0	0.0	100.0	-	-	0.1	88.9	11.0	-	-	-
Total %	4.6	0.0	1.4	-	6.0	1.5	35.5	0.1	-	37.0	0.0	0.0	0.1	-	0.1	0.1	50.6	6.3	-	57.0	-
PHF	0.852	0.000	0.688	-	0.808	0.857	0.809	0.250	-	0.812	0.000	0.000	0.250	-	0.250	0.250	0.863	0.750	-	0.876	0.890
All Vehicles (no classification)	75	0	22	-	97	24	576	1	-	601	0	0	1	-	1	1	822	102	-	925	1624
% All Vehicles (no classification)	100.0	-	100.0	-	100.0	100.0	100.0	100.0	-	100.0	-	-	100.0	-	100.0	100.0	100.0	100.0	-	100.0	100.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	0.0	0.0	0.0	0.0	-	0.0	-	-	0.0	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	-	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	3	-	-	-	-	0	-	-	-	-	1	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	-	-	-	-	-	100.0	-	-	-	-	-	-	-

Los Alamos County
101 Camino Entrada
Bldg 1, Rm 216
Los Alamos, New Mexico, United States 87544
505-662-8176
Public Works/Transportation

Count Name: Trinity/20th 10_15
Site Code:
Start Date: 10/27/2015



Turning Movement Peak Hour Data Plot (11:00 AM)

Los Alamos County
101 Camino Entrada
Bldg 1, Rm 216
Los Alamos, New Mexico, United States 87544
505-662-8176
Public Works/Transportation

Count Name: Trinity/20th 10_15
Site Code:
Start Date: 10/27/2015

Turning Movement Peak Hour Data (12:00 PM)

Start Time	20th St Southbound					Trinity Dr Westbound					Parking Lot Northbound					Trinity Dr Eastbound					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
12:00 PM	27	0	5	2	32	8	169	0	0	177	0	0	0	2	0	0	220	28	0	248	457
12:15 PM	21	0	5	0	26	7	188	0	0	195	2	0	0	1	2	1	177	20	0	198	421
12:30 PM	25	0	5	2	30	8	186	0	0	194	0	0	0	1	0	0	154	20	0	174	398
12:45 PM	27	0	7	0	34	8	170	0	1	178	0	0	0	0	0	0	188	15	0	203	415
Total	100	0	22	4	122	31	713	0	1	744	2	0	0	4	2	1	739	83	0	823	1691
Approach %	82.0	0.0	18.0	-	-	4.2	95.8	0.0	-	-	100.0	0.0	0.0	-	-	0.1	89.8	10.1	-	-	-
Total %	5.9	0.0	1.3	-	7.2	1.8	42.2	0.0	-	44.0	0.1	0.0	0.0	-	0.1	0.1	43.7	4.9	-	48.7	-
PHF	0.926	0.000	0.786	-	0.897	0.969	0.948	0.000	-	0.954	0.250	0.000	0.000	-	0.250	0.250	0.840	0.741	-	0.830	0.925
All Vehicles (no classification)	100	0	22	-	122	31	713	0	-	744	2	0	0	-	2	1	739	83	-	823	1691
% All Vehicles (no classification)	100.0	-	100.0	-	100.0	100.0	100.0	-	-	100.0	100.0	-	-	-	100.0	100.0	100.0	100.0	-	100.0	100.0
Bicycles on Road	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0	0	0	-	0	0
% Bicycles on Road	0.0	-	0.0	-	0.0	0.0	0.0	-	-	0.0	0.0	-	-	-	0.0	0.0	0.0	0.0	-	0.0	0.0
Bicycles on Crosswalk	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-	-	-	0	-	-
% Bicycles on Crosswalk	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	0.0	-	-	-	-	-	-	-
Pedestrians	-	-	-	4	-	-	-	-	1	-	-	-	-	4	-	-	-	-	0	-	-
% Pedestrians	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	100.0	-	-	-	-	-	-	-

Los Alamos County
101 Camino Entrada
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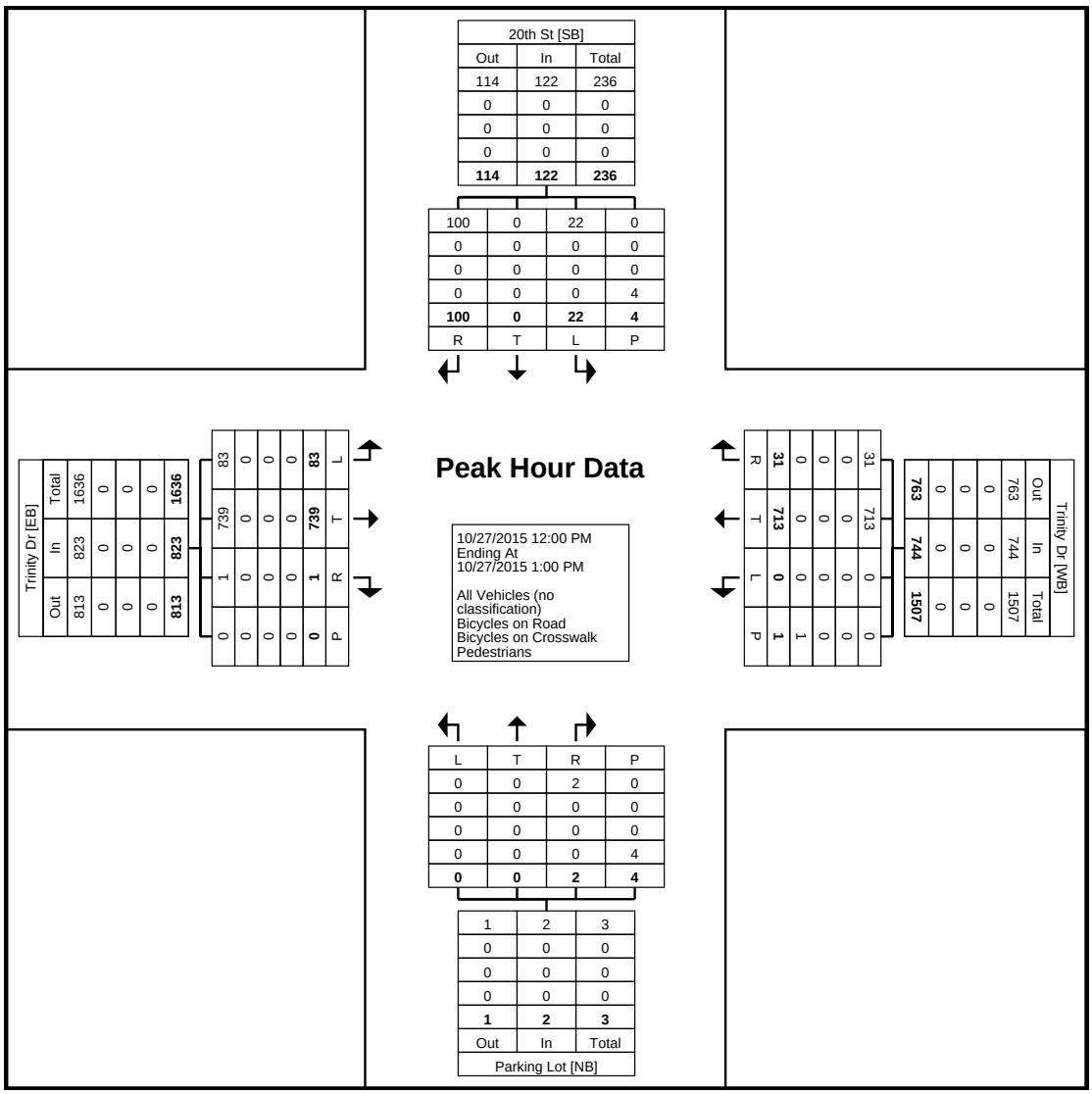


Turning Movement Peak Hour Data Plot (12:00 PM)

Los Alamos County
101 Camino Entrada
Bldg 1, Rm 216
Los Alamos, New Mexico, United States 87544
505-662-8176
Public Works/Transportation

20th Street and Trinity Drive Signal Warrant Analysis

Warrant 1. Eight-Hour Vehicular Volume	No
Warrant 2. Four-Hour Vehicular Volume	No
Warrant 3. Peak Hour	No
Warrant 4. Pedestrian Volume	No
Warrant 5. School Crossing	n/a
Warrant 6. Coordinated Signal System	No
Warrant 7. Crash Experience	No
Warrant 8. Roadway Network	N/a
Warrant 9. Intersection Near a Grade Crossing	N/a

Warrant 1 Eight Hour Warrant

Hour		Trinity Drive (Major)		20th Street (Minor)	Satisfied Yes or No A	Satisfied Yes or No B
6:00-7:00	276	183	459	41	No	No
7:00-8:00	571	471	1042	85	No	No
8:00-9:00	474	562	1036	69	No	No
9:00-10:00	421	510	931	70	No	No
10:00-11:00	459	575	1034	63	No	No
11:00-noon	602	1074	1676	119	No	Yes
noon-1:00	826	823	1649	162	No	Yes
1:00-2:00	717	607	1324	109	No	Yes
2:00-3:00	540	616	1156	90	No	No
3:00-4:00	471	777	1248	82	No	No
4:00-5:00	512	1031	1543	78	No	No
5:00-6:00	595	956	1551	59	No	No
		A	B			
Major	Threshold	600	900		No	No
Minor	Threshold	200	100		No	No

Therefore Warrant 1. Minimum Vehiclular Volume is not satisfied

Warrant 2. Four Hour Warrant

Hour		Trinity Drive (Major)		20th Street (Minor)	Satisfied
6:00-7:00	276	183	459	41	No
7:00-8:00	571	471	1042	85	No
8:00-9:00	474	562	1036	69	No
9:00-10:00	421	510	931	70	No
10:00-11:00	459	575	1034	63	No
11:00-noon	602	1074	1676	119	Yes
noon-1:00	826	823	1649	162	Yes
1:00-2:00	717	607	1324	109	No
2:00-3:00	540	616	1156	90	No
3:00-4:00	471	777	1248	82	No
4:00-5:00	512	1031	1543	78	No
5:00-6:00	595	956	1551	59	No
Threshold			Varies	Varies	

Two hours fall above the threshold line
One hour is near the threshold line (borderline)
Remaining hours are below the threshold line

Therefore Warrant 2. Four-Hour Vehicular Volume Warrant is not satisfied.

Warrant 3. Peak Hour Warrant

	Major	Major	Minor	Satisfied	
	826	823	162		
			142	Rt Turns	
			20	Lt Turns	
			0	Straight	
Min Threshold	1800		150		
0% Reduction (Minor)	1649		162	Yes	(Borderline)
25% Reduction (Minor)			127	No	
33% Reduction (Minor)			115	No	
50% Reduction (Minor)			91	No	
67% Reduction (Minor)			67	No	
75% Reduction			56	No	

A reduction of the right turning volume was considered and recommended based upon context.
Siight distance for right-turing vehicles was obsered in the field and observed to be sufficient
A very small number of crossing vehicles were counted that would benefit from a signal
If south side develops and crossing traffic increases or S leg traffic grows considerably, then re-evaluate

Therefore Warrant 3. Peak Hour Warrant is not satisfied.

Warrant 5. Pedstrian Volume

The minimum threhold is 133 pph. The threshold exceeds the peak hour for pedestrins crossing Trinity Dr.
The peak pedestrain hour for pedestrian count on Oct. 27, 2015 is used below:

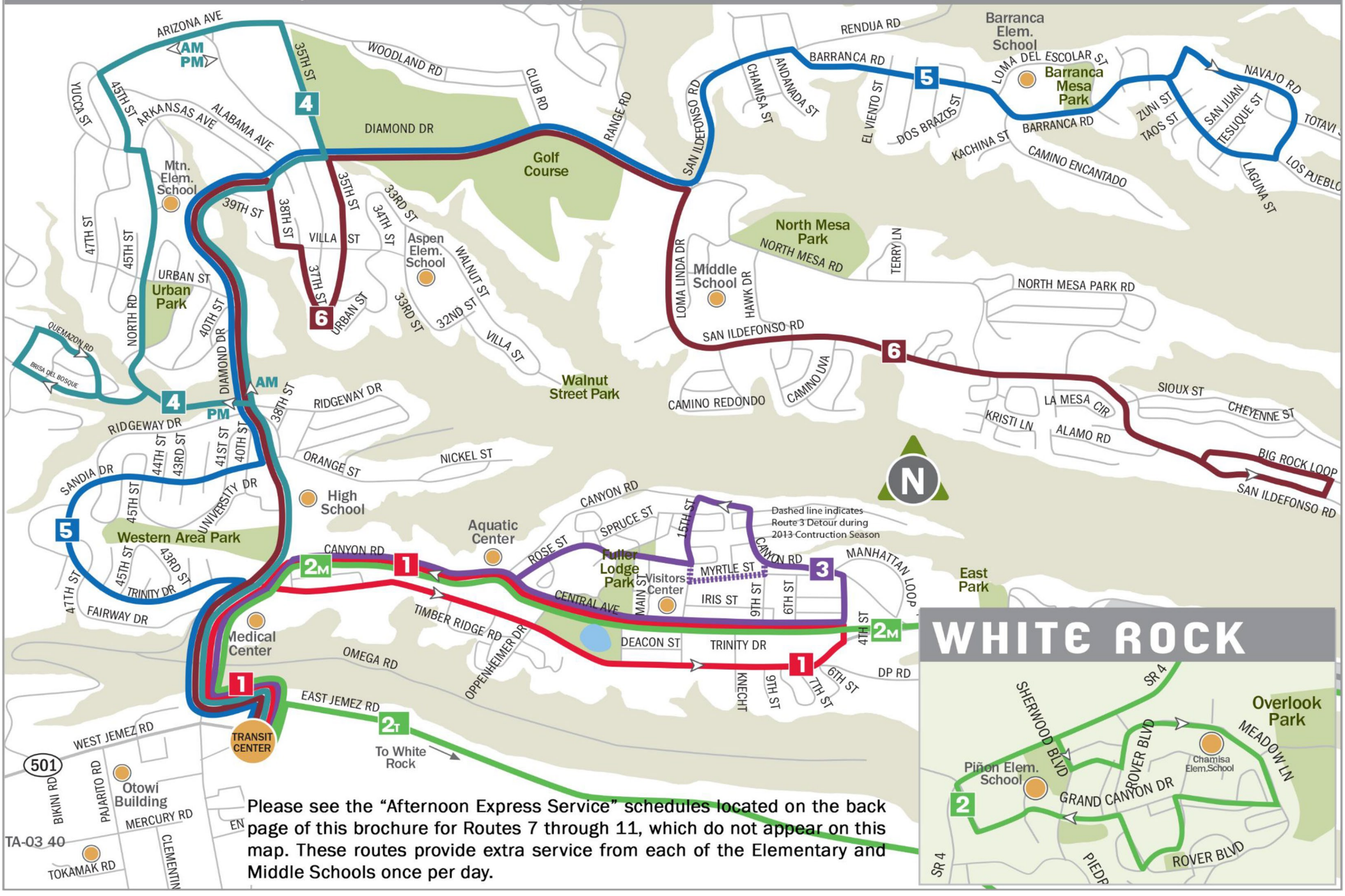
	Eastbound Leg (n/s)	Westbound Leg (n/s)	
6:00-7:00	0	0	
7:00-8:00	0	0	
8:00-9:00	0	4	
9:00-10:00	0	0	
10:00-11:00	1	0	
11:00-noon	0	0	
noon-1:00	1	0	
1:00-2:00	0	0	
2:00-3:00	2	10	12
3:00-4:00	0	1	
4:00-5:00	1	2	
5:00-6:00	0	0	

Peak hour=12 pph<133

Therefore Warrant 4. Pedestrian Volume Warrant is not satisfied.

Warrant 6. Coordinated Signal System is not applicable
Warrant 7. Crash Experience is not satisfied
Warrant 8. Roadway Network is not applicable
Warrant 9. Intersection Near a Grade Crossing is not applicable

ATOMIC CITY TRANSIT SYSTEM MAP – LOS ALAMOS



Please see the "Afternoon Express Service" schedules located on the back page of this brochure for Routes 7 through 11, which do not appear on this map. These routes provide extra service from each of the Elementary and Middle Schools once per day.

661-RIDE (7433)

Effective 11-26-14
Revision 02-04-15

ROUTE 1
DOWNTOWN CIRCULATOR

EVERY 20 MINUTES
5:48 AM - 7:08 PM

Departs: Transit Center	:48	:08	:28
Diamond Dr & Trinity Dr (Hospital)	:49	:09	:29
Trinity Dr & Oppenheimer Dr	:51	:11	:31
Trinity Dr & 15th St	:52	:12	:32
Trinity Dr & 4th St	:53	:13	:33
Central Ave & 15th St (Science Museum)	:55	:15	:35
Central Ave & 20th St (Library)	:56	:16	:36
Diamond Dr & Canyon Rd	:59	:19	:39
Arrives: Transit Center	:01	:21	:41

Atomic City Transit routes connect with the NCRTD Los Alamos route at the Transit Center each mid-day M-F. Visit www.ncrtd.org to view NCRTD schedules.

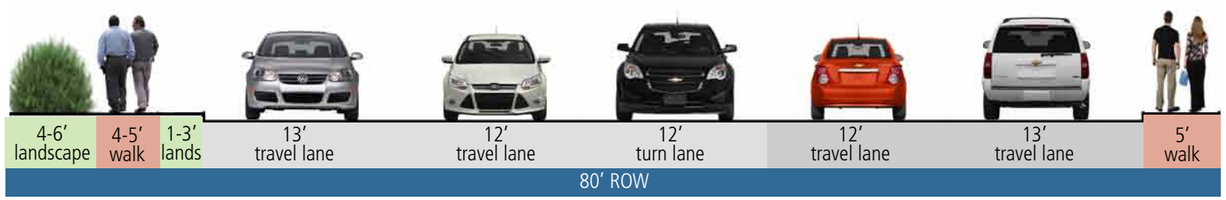
Atomic City Transit routes connect with the NMDOT Park & Ride routes at the Transit Center and at the Mesa Public Library each morning and evening M-F. Visit http://dot.state.nm.us/en/Park_and_Ride.html to view Park & Ride schedules.

Non-Discrimination Policy

The Incorporated County of Los Alamos does not discriminate on the basis of race, color, religion, sex, age, national origin, sexual orientation or gender identity, disability, genetic information, or veteran status in employment or the provisions of service. To find out more about our non-discrimination obligations or to file a complaint, please contact the Los Alamos County Human Resources Division at 662-8040.

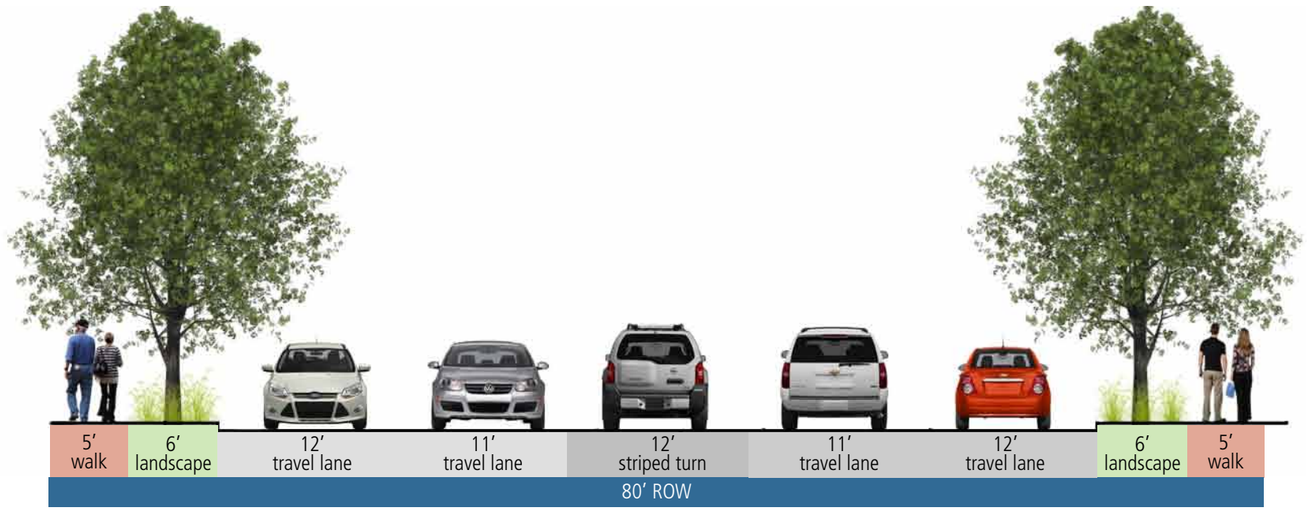
Design Recommendations

trinity



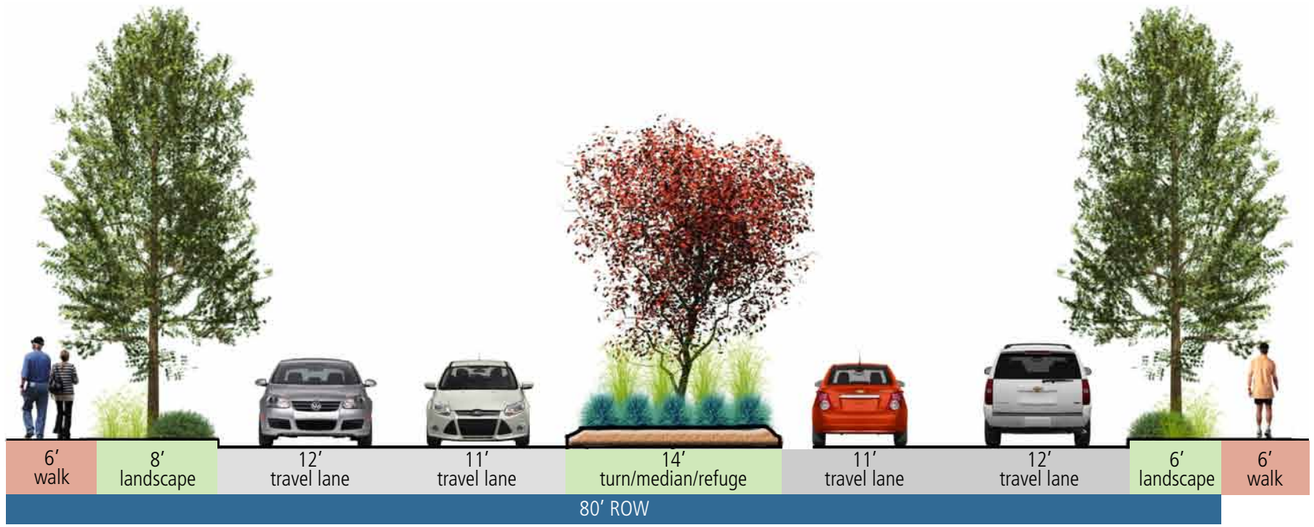
EXISTING CONDITIONS

SUMMARY - EXISTING CONDITIONS	
Overall Streetscape Width	80′
Flowline/travel width	62′
Ped Crossing width	62′
Ped Refuge	no



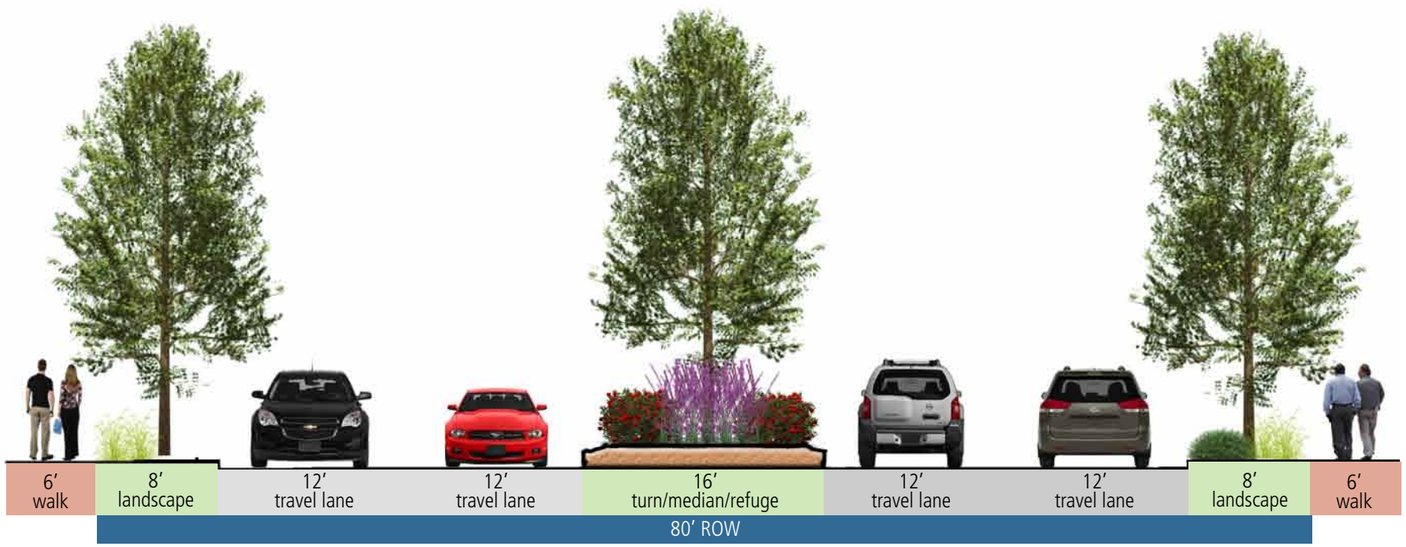
OPTION A - all features in ROW

SUMMARY - OPTION A	
Overall Streetscape Width	80′
Flowline/travel width	58′
Ped Crossing width	58′
Ped Refuge	no
NEGATIVE FEATURES	
Long ped crossing width	
Narrow sidewalk (6′ pref)	
Narrow landscape (8′ pref)	
POSITIVE FEATURES	
No easements required	
Adds landscape buffer	
Sidewalk wider than existing	
CONSIDERATIONS	
Travel lanes narrower than standard	
Where ROW is sub 80′, sidewalk and landscape may need to be narrowed	
Street trees overhang travel lanes	



OPTION B - north sidewalk in ROW, south in easement

SUMMARY - OPTION B	
Overall Streetscape Width	86′
Flowline/travel width	60′
Ped Crossing width	23-34′
Ped Refuge	yes
NEGATIVE FEATURES	
Easement required on south	
Narrow ped refuge (3′)	
Narrow landscape on south (8′ pref)	
POSITIVE FEATURES	
Adds median and ped refuge	
Adds landscape buffer	
Wider sidewalks	
CONSIDERATIONS	
Travel lanes narrower than standard	
6′ landscape on south could be expanded if larger easement acquired	
Street trees overhang travel lanes	



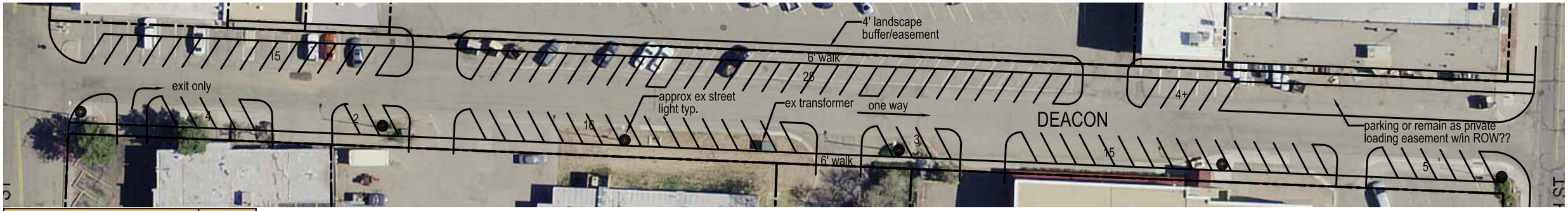
OPTION C - north and south sidewalks outside ROW in easement

SUMMARY - OPTION C	
Overall Streetscape Width	92′
Flowline/travel width	64′
Ped Crossing width	24-37′
Ped Refuge	yes
NEGATIVE FEATURES	
Easement required north and south	
Narrow ped refuge (3′)	
Impacts to existing developments - both north and south	
POSITIVE FEATURES	
Adds median and ped refuge	
Adds landscape buffer at pref width	
Wider sidewalks at pref width	
Standard travel and turn lane widths	
CONSIDERATIONS	
evaluate 92′ wide corridor impacts	
walk and landscape width could vary depending on property owner	
Street trees overhang travel lanes	

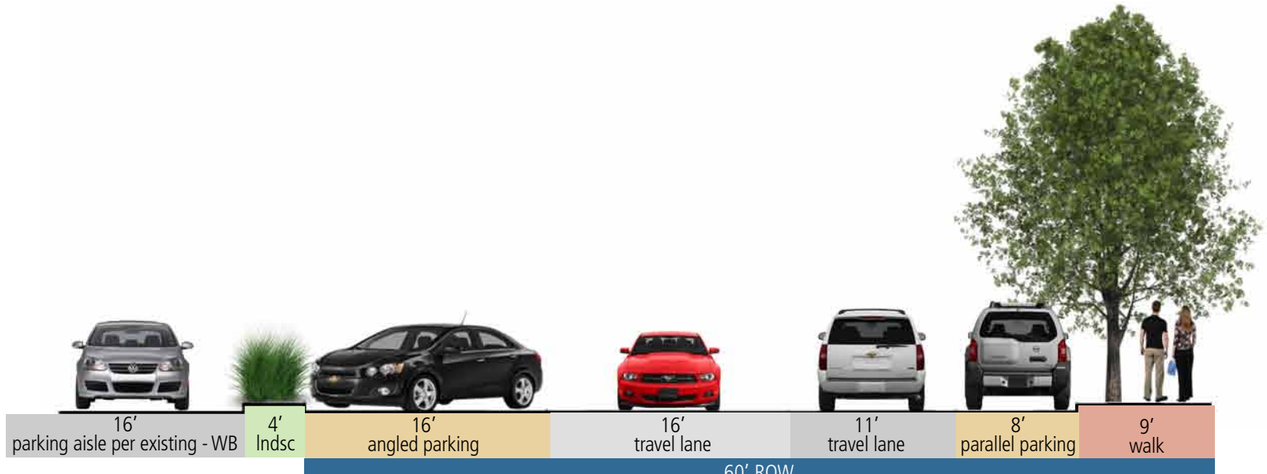
Design Recommendations

deacon

OPTION A - angled/angled parking - one-way - approx 93+ spaces

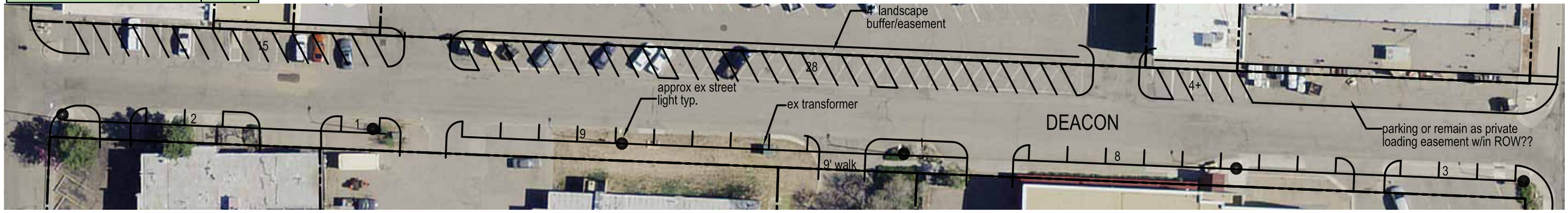


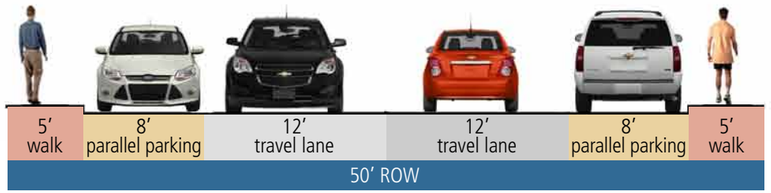
SUMMARY - OPTION A	
Flowline/travel width	58′
Ped Crossing width	58′
FEATURES/CONSIDERATIONS	
Buffers both sides	
Maximizes parking	
Trees in bulb-outs only	
Sidewalks both sides	



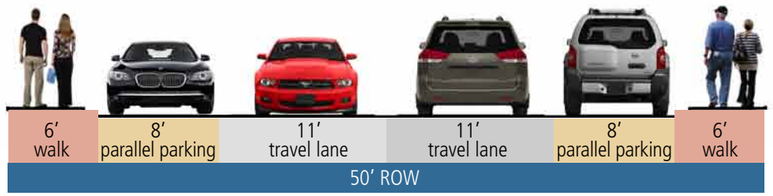
OPTION B - angled/parallel parking - two-way - approx 71+ spaces

SUMMARY - OPTION B	
Flowline/travel width	58′
Ped Crossing width	58′
FEATURES/CONSIDERATIONS	
Buffers from north parking	
Street trees in grate continuous	
Parking both sides	
Sidewalks one side only	



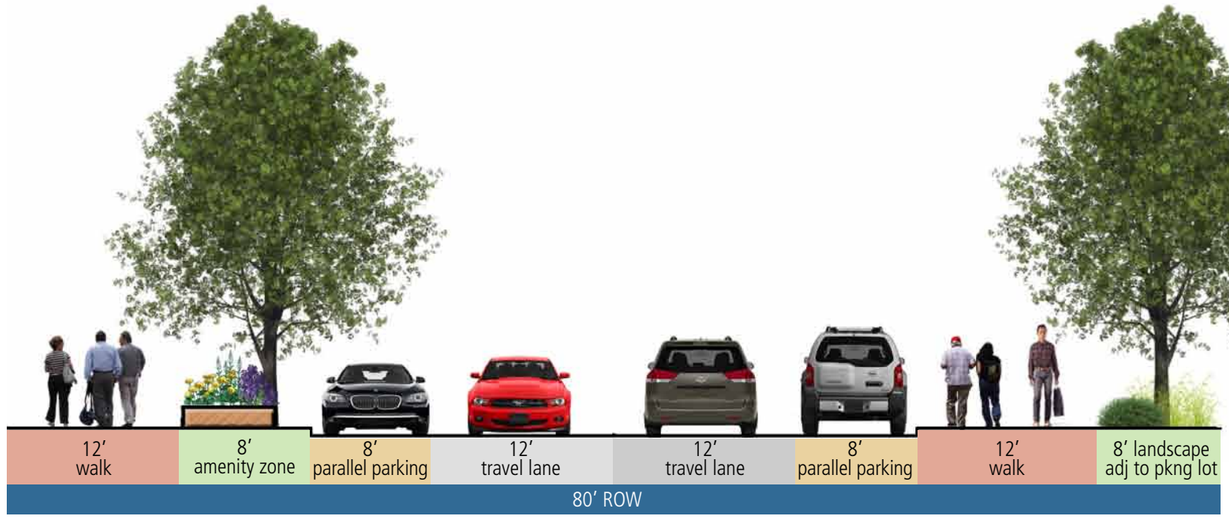


existing conditions 15th to 4th



OPTION A - 15th to 4th - reduced travel lanes/wider sidewalk

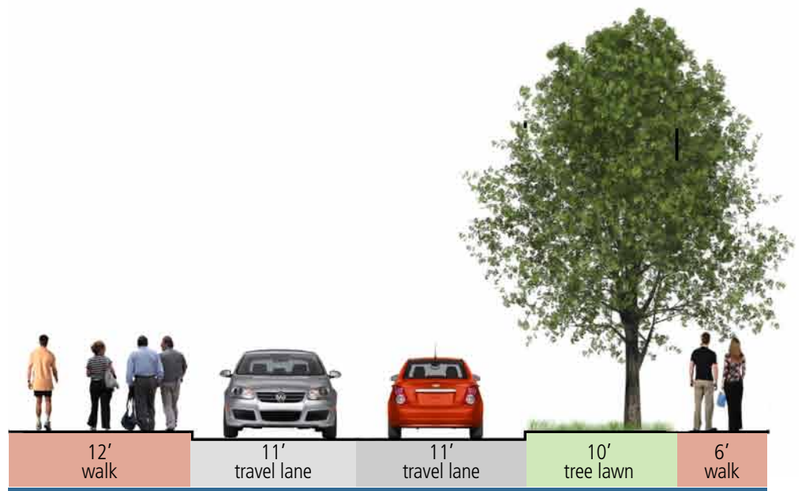
SUMMARY - OPTION A - 15th to 4th	
Flowline	38′
Ped Crossing width	22′
FEATURES/CONSIDERATIONS	
Sidewalk meets min preferred	
Requires shift of flowline 1′	
Trees in bulb-outs only per existing	
Travel lanes less than standard width	



20th to 15th

central

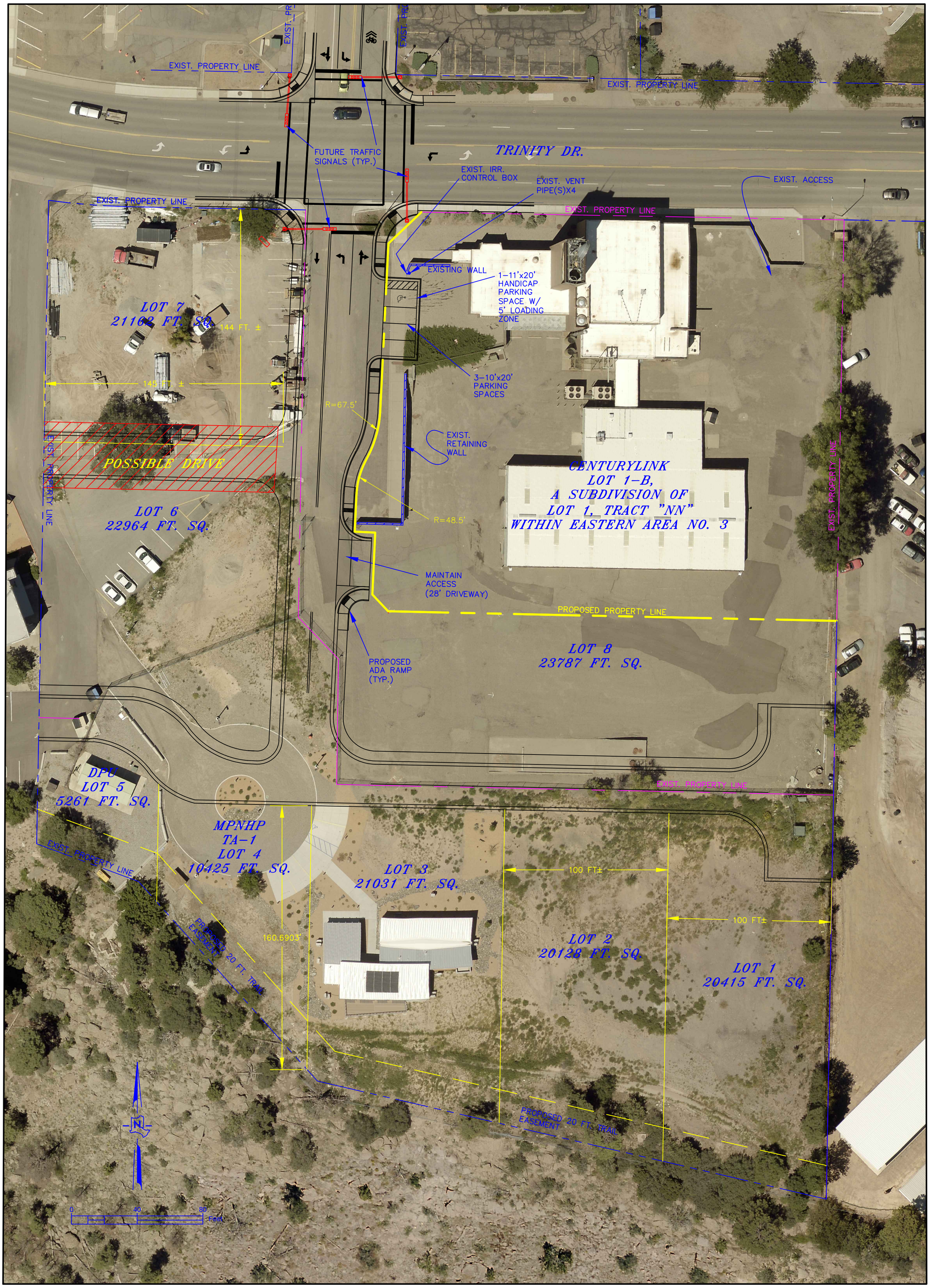
SUMMARY - 20th to 15th	
Flowline (per existing)	38′
Ped Crossing width (per existing)	24′
FEATURES/CONSIDERATIONS	
Simplify amenity zone placement	
Maximize sidewalk both sides	
Landscape buffer - parking lots near 15th	



20th

SUMMARY - 20th to 15th	
Flowline	22′
Ped Crossing width	22′
FEATURES/CONSIDERATIONS	
Wide sidewalk adj to Ashley Pond	
Tree lawn on east mimics Park character	
Travel lanes less than standard	
No on street parking	

EXHIBIT SHOWING PROPOSED
20TH STREET SAFETY IMPROVEMENTS & EXTENSION



*CONCEPTUAL DRAWING ONLY NOT FOR DESIGN PURPOSES