



6 February 2020

Gary Odehnal, PE
City of Dacono
4715 Innovation Drive, Ste 100
Fort Collins, Colorado 80525

**SUBJECT: DACONO U-HAUL EAST
 SILVER PEAKS AVENUE/GRAND VIEW BLVD
 TRIP GENERATION ASSESSMENT**

Dear Mr. Odehnal,

Please find enclosed a brief trip generation assessment (TGA) regarding the Dacono U-Haul East project located on the northeast corner of Silver Peaks Avenue/Grand View Boulevard in Dacono, Colorado. The vicinity of the project is shown in **Figure 1**. The project includes 42 boat/recreational vehicle (RV) spaces, 293 mini-storage units and a 10,395 square foot U-Box storage facility as shown in **Figure 2**. The site will be served by three proposed access points.

The purpose of this traffic impact statement is to estimate the traffic generation associated with the proposed Dacono U-Haul East project and outline the possible impacts of the site on the immediate area.

Existing Conditions

Grand View Boulevard, also named County Road 12, has an east-west alignment that offers one lane in each direction, separated by a two-way, center left turn lane. Curb, gutter and sidewalk facilities exist along the north side of Grand View Boulevard while the south side of the road has a grass shoulder. Overhead utility lines and a drainage channel also parallel the north side of the road. Grand View Boulevard has a posted speed limit of 45 miles per hour (mph) and can be used to access the Interstate 25 Frontage Road west of the project site.

Silver Peaks Avenue is a two-way, two lane roadway that extends north from Grand View Boulevard. This roadway bends to the east and then back to the north as it continues north of Sunshine Road. Curb and gutter are present on both sides of Silver Peaks Avenue. There is no posted speed limit on Silver Peaks Avenue. During the field review, on-street parking was observed on Silver Peaks Avenue, north of Sunshine Drive.

Sunshine Drive extends east from Silver Peaks Avenue approximately 425 feet north of Grand View Parkway. This roadway offers one lane in each direction and dead ends into a cul-de-sac approximately 530 feet east of Silver Peaks Avenue.

The intersection of Silver Peaks Avenue/Grand View Boulevard is a three leg, un-signalized intersection. The eastbound approach to this intersection offers a two-way, center left turn lane and a through lane while westbound traffic is provided with a shared through/right turn lane. Southbound vehicles approaching Grand View Parkway make use of unmarked exclusive left turn and right turn lanes. The southbound approach to the intersection of Silver Peaks Avenue/Grand View Boulevard is STOP controlled while eastbound and westbound traffic on Grand View Boulevard operates under free flow conditions.

Sunshine Drive/Silver Peaks Avenue form a four-legged intersection. The east and west legs of this intersection are offset approximately 45 feet and the west leg of the intersection provides direct access into an existing commercial business complex. All approaches to the intersection of Sunshine Drive/Silver Peaks Avenue offer a shared left turn/through/right turn lane. Northbound and southbound traffic on Silver Peaks Avenue operate under free flow conditions while eastbound and westbound traffic are STOP controlled at the intersection.

Access

The Dacono U-Haul East development will be served by three proposed access points. Two access points will be constructed along the south side of Sunshine Drive while the final driveway will be provided on the east side of Silver Peaks Avenue.

The Main East Access will be constructed on the east side of Silver Peaks Avenue, approximately 175 feet north of Grand View Boulevard. This driveway will offer full access to the proposed site and is anticipated to align with the West Main Access that will serve the adjacent Dacono U-Haul West development on the northwest corner of Silver Peak Avenue/Grand View Boulevard. Westbound traffic at the Main East Access will be STOP controlled while Silver Peaks Avenue will continue to operate under free flow conditions.

Two full access points, North Access and Cul-de-sac Access, will be constructed along the south side of Sunshine Drive, approximately 75 feet and 550 feet east of Silver Peaks Avenue, respectively. Traffic exiting these two driveways will be STOP controlled while traffic on Sunshine Drive will continue to operate under free flow conditions.

Figure 3 shows the locations, geometry, and spacing for the proposed access points serving the Dacono U-Haul East site.

Trip Generation

Trip generation for the project was developed utilizing nationally agreed upon data contained in the Institute of Transportation Engineers (ITE) publication *Trip Generation*,

10th Edition, 2017. Trip generation calculations for the proposed 42 boat/recreational vehicle (RV) storage spaces and 293 mini-storage units was based on the ITE Land Use Code 151 (LUC 151), Mini-Warehouse.

Specific trip generation rates are not provided by ITE for the U-Box facilities. Trips that are generated by these storage facilities are linked solely to the pickup and delivery vehicles that transport storage containers from a client’s site to/from the holding facility. The proposed U-Box facility is only expected to be accessed by 1 or 2 onsite U-Haul employees and is not accessible to the public. Based on this information, it was assumed two employees will utilize the proposed U-Box facility during a typical weekday and that these trips will occur during the weekday peak hours.

The results of the weekday trip generation calculations are shown in **Table 1**. Complete trip generation calculations can be found attached to this traffic impact statement.

Table 1 – Weekday Site Generated Trips

Time Period	RV Spaces and Mini-Storage Units	U-Box Facility	Total
Average Daily, Inbound (vtpd)	31	2	33
Average Daily, Outbound (vtpd)	31	2	33
Total Daily	62	4	66
AM Peak Hour, Inbound (vtph)	3	1	4
AM Peak Hour, Outbound (vtph)	2	1	3
Total AM Peak	5	2	7
PM Peak Hour, Inbound (vtph)	4	1	5
PM Peak Hour, Outbound (vtph)	3	1	4
Total PM Peak	7	2	9

vtpd - vehicle trips per day, vtph - vehicle trips per hour

As shown in **Table 1**, the proposed Dacono U-Haul East site is anticipated to generate 7 vehicles trips during the weekday AM peak hour and 9 trips during the weekday PM peak hour.

Turn Lane Analysis

A key element of this study is to determine if auxiliary turn lanes will be required at the study intersections directly serving the project site. The City of Dacono uses the Colorado State Highway Access Code to provide guidelines for the inclusion of left and right turn lanes at driveways.

When needed, turn lanes remove the slowing, turning traffic from the through traffic stream, improving capacity and reducing rear-end crashes. **Table 2** shows the locations that were evaluated for turn lanes.

As shown in **Table 2**, turn lanes are not warranted at the proposed access points.

Table 2 – Turn Lane Warrants

Intersection	Direction	Turn Treatment Analyzed	Turn Treatments Warranted?
Main East Access/Silver Peaks Avenue	Northbound	Right Turn Lane	No
Main East Access/Silver Peaks Avenue	Southbound	Left Turn Lane	No
North Access/Sunshine Drive	Westbound	Left Turn Lane	No
North Access/Sunshine Drive	Eastbound	Right Turn Lane	No
Cul-de-sac Access/Sunshine Drive	Eastbound	Right Turn Lane	No

Conclusion

The Dacono U-Haul East project is predicted to generate an additional 7 vehicles trips during the weekday AM peak hour and 9 trips during the weekday PM peak hour. The traffic volumes associated with the site are not expected to have a significant impact on the surrounding roadway system.

Left or right turn lanes are not warranted at any of the three proposed access points.

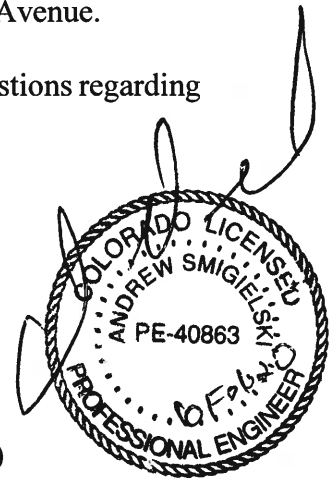
The North Access has the potential to conflict with the intersection of Sunshine Drive/Silver Peaks Avenue due to their close proximity to each other. If possible, the North Access should be removed or shifted to the east where turning movement conflicts between the two intersections will be avoided.

It is recommended that on-street parking be prohibited along Silver Peaks Avenue north of Sunshine Drive where the roadway curves to maximize sight distance on the eastbound and westbound approaches to the intersection of Sunshine Drive/Silver Peaks Avenue.

Thank you again for your time and review of this TGA. If you have any questions regarding the TIS, please feel free to contact me at 602.266.7983.

Respectfully Submitted,

Andrew Smigielski, PE, PTOE, PTP
Southwest Traffic Engineering, LLC
Senior Traffic Engineer



cc: Jim Lorimer, Americo Real Estate/U-Haul Construction (by email)

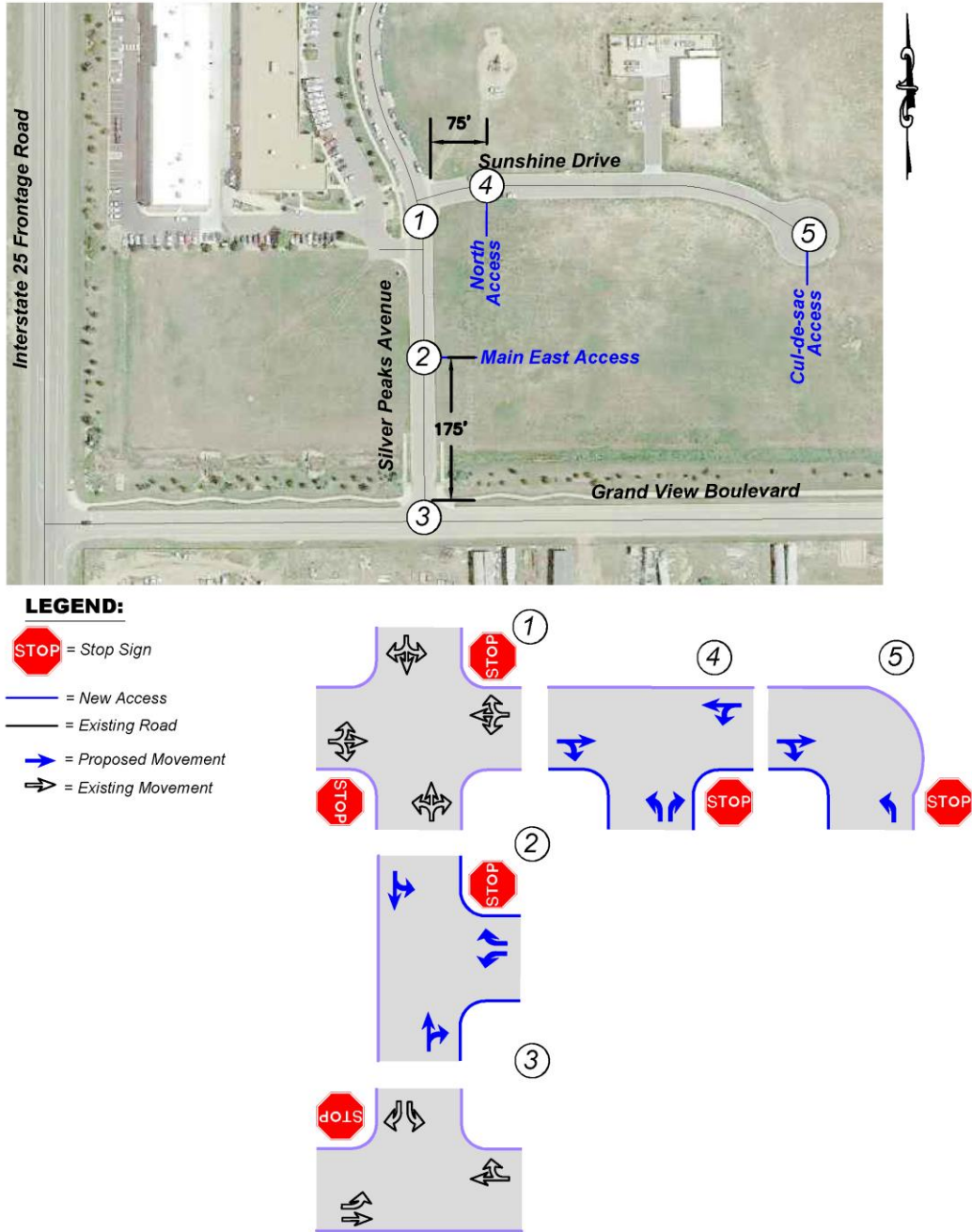
Attachments:

- Figure 1 – Vicinity Map
- Figure 2 – Site Plan
- Figure 3 – Baseline Access Point and Intersection Configuration Assumptions
- Trip Generation Calculations

Figure 1 – Vicinity Map



Figure 3 – Baseline Access Point and Intersection Configuration Assumptions



Mini-Warehouse

LAND USE: 335 Units Mini-Warehouse

TRIP GENERATION CALCULATIONS ARE BASED ON THE INSTITUTE OF TRANSPORTATION ENGINEERS' TRIP GENERATION, 10TH EDITION. THE ITE LAND USE CODE IS Mini-Warehouse (151), General Urban/Suburban

Weekday

Average Rate = 17.96 Trips per 100 Units (U)

$$T = 17.96 \text{ Trips} \times 335 \text{ U} / 100$$

$$T = \quad \quad \quad \mathbf{62 \text{ VTPD}}$$

$$\text{ENTER: } (0.5) \times (62) = \quad \quad \quad \mathbf{31 \text{ VTPD}}$$

$$\text{EXIT: } (0.5) \times (62) = \quad \quad \quad \mathbf{31 \text{ VTPD}}$$

AM PEAK HOUR (ONE HOUR BETWEEN 7 AND 9 AM)

Average Rate = 1.39 Trips per 100 Units (U)

$$T = 1.39 \text{ Trips} \times 335 \text{ U} / 100$$

$$T = \quad \quad \quad \mathbf{5 \text{ VPH}}$$

$$\text{ENTER: } (0.51) \times (5) = \quad \quad \quad \mathbf{3 \text{ VPH}}$$

$$\text{EXIT: } (0.49) \times (5) = \quad \quad \quad \mathbf{2 \text{ VPH}}$$

PM PEAK HOUR (ONE HOUR BETWEEN 4 AND 6 PM)

Average Rate = 1.95 Trips per 100 Units (U)

$$T = 1.95 \text{ Trips} \times 335 \text{ U} / 100$$

$$T = \quad \quad \quad \mathbf{7 \text{ VPH}}$$

$$\text{ENTER: } (0.5) \times (7) = \quad \quad \quad \mathbf{4 \text{ VPH}}$$

$$\text{EXIT: } (0.5) \times (7) = \quad \quad \quad \mathbf{3 \text{ VPH}}$$

*where, T = trip ends

TRIP GENERATION SUMMARY

SATURDAY

62 VTPD

AM PEAK HOUR (ONE HOUR BETWEEN 7 AND 9 AM)

5 VPH

PM PEAK HOUR (ONE HOUR BETWEEN 4 AND 6 PM)

7 VPH