

DE17-02



City of Grand Junction
Public Works Department
250 North 5th Street
Grand Junction, CO 81501-2668
Phone: (970) 244-1555
FAX: (970) 256-4022

July 22, 2002

Mr. Scot Martin
Carl Walker, Inc.
2460 West 26th Avenue, STE 500-C
Denver, CO 80211

RE: TEDS Exception from Minimum Parking Module Width in St. Mary's Garage

Dear Scot;

Please find attached the committee's decision on the above request. You may use this decision to proceed through the development review process.

If you have any question concerning this decision, please feel free to contact the Development Engineer in charge of your project or me.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael G. McDill".

Michael G. McDill, P.E.
City Engineer

C: Rick Dorris, Development Engineer (256-4034)



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DESIGN EXCEPTION #DE17-02

To: Mark Relph, Director of Public Works & Utilities
Thru: Tim Moore, Public Works Manager
Copy to: Rick Dorris, Development Engineer
From: Mike McDill, City Engineer
Date: June 27, 2002
RE: Exception from Minimum Parking Module Width in Their Garage

DESCRIPTION OF THE SITUATION

Applicant is planning to construct a 400 space multi-level parking garage adjacent to the main hospital building. Their parking design consultant recommends a 60-foot wide module (two 18-foot stalls and a 24-foot aisle). He provides documentation of two national standards that would allow this configuration and twenty-six examples of other facilities that used this, or a tighter, width.

St. Mary's requests an exception to the table at the end of Section 4.3.2.1, *Parking Stall and Aisle Design*, which indicates that 9-foot stalls at 90degrees requires a 25-foot aisle and 18.5 feet of stall depth.

EXCEPTION CONSIDERATIONS

1. Will the exception compromise safety?

The tighter configuration might result in more minor accidents between vehicles backing out of stalls and those driving down the aisle. There may also be more accidents involving vehicles hitting adjacent parked cars because the drivers could not negotiate the limited maneuvering area.

2. Have other alternatives been considered that would meet the standard?

Our 62-foot standard can be attained, but there would be detrimental to adjacent roadway sight distances. The narrower building will provide more exterior pedestrian access and a better turning arrangement at the entrance.

3. Has the proposed design been used in other areas?

Several other facilities are presented as justification of the proposal.

4. Will the exception require CDOT or FHWA coordination?


No.

5. Is this a one-time exception or a manual revision?

This would be a one-time exception for this structure.

Staff Recommendation

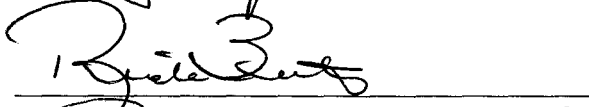
I recommend approval of the necessary Design Exceptions to Section 4.3.2.1 to allow the proposed narrower parking modules for the St. Mary's hospital parking garage.

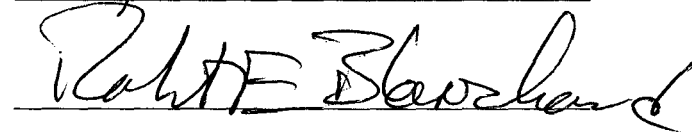
Recommended by: 

Approved as Requested:

Denied:







June 13, 2002

Mr. Rick Dorris
City Development Engineer
Community Development Department
City of Grand Junction
250 North 5th Street
Grand Junction, Colorado 81501

Re: St. Mary's Hospital Parking Structure

Dear Mr. Dorris:

On behalf of St. Mary's Hospital, *Carl Walker, Inc.*, a national parking consulting firm with an office in Denver, is requesting the following exception to Transportation Design Standards. We are recommending a variation from city parking standards with respect to the following:

- *A reduction in the width of a parking module with 90° parking spaces that are 9'-0" wide from 62'-0" to 60'-0".*

Attached is a document supporting the proposed deviation from city standards prepared by *Carl Walker, Inc.* It would be appreciated if you would review the document and give consideration to our recommendation. We believe this variation from city standards is fully warranted and in accordance with state-of-the-art parking design. Hopefully you will agree with our rationale once you have read the enclosed report.

Thank you in advance for giving this issue your careful consideration. Please do not hesitate to call me with any questions or comments.

Sincerely,



Scot D. Martin
Director of Functional Design

Attachment

Request for an Exception to Transportation Design Standards



Grand Junction, Colorado



Prepared on Behalf of:

St. Mary's Hospital
2635 N. 7th Street
P.O. Box 1628
Grand Junction, CO 81502

Prepared by:

Carl Walker
Parking
Planning Engineering Restoration

June 13, 2002

Request for an Exception to
Transportation Design Standards



Grand Junction, Colorado

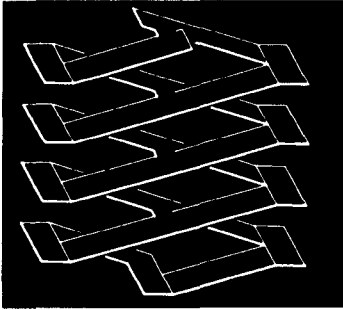


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Study Purpose

A four level, 400-space multi-level parking facility is currently being designed for St. Mary's Hospital in Grand Junction. *Carl Walker, Inc.* is participating in the design of the parking structure. On behalf of St. Mary's Hospital, we are proposing this exception to Transportation Design Standards (TEDS). In the City of Grand Junction a parking module with 9'-0" wide stalls oriented 90° to the drive aisle is required to be 62'-0" wide (two 18'-6" long stalls and a 25'-0" drive aisle between). Based on state-of-the-art parking industry design standards, as presented in publications by the National Parking Association, Urban Land Institute and Institute of Transportation Engineers, we believe that a 62'-0" wide parking module is excessively wide. We recommend a 60'-0" wide parking module for the St. Mary's garage.

Vehicle Size

Parking dimensions have historically been related to vehicle size. The primary reason for adjusting parking dimensions to vehicle size is economics. When parking standards were first established more than thirty years ago, the rule of thumb for parking space design was approximately 325 to 350 square feet per parking space. With the increased sale of small vehicles in the late 1970's and 1980's, downsized parking dimensions and small-vehicle-only spaces became common practice. Small vehicle sales represented over one-half of all cars sold during this period, and the reduced parking geometrics resulted in efficiencies of approximately 300 square feet per space. The 1990's favored larger vehicles with a significant increase in the sale of light trucks, vans and sport utility vehicles (SUV's).

The following table shows the latest (based on 2001 sales) "Design Vehicles" by class, light trucks, vans, and SUV's. These data refer to the dimensions of the 85th percentile vehicle in the range of vehicles from smallest (zero percentile) to largest (100th percentile). The use of the 85th percentile vehicle is based on the traffic engineering

principle of designing roadways for the 85th percentile peak traffic volume. Designing for the absolute peak would mean there would be excess stall size 99% of the time. The 85th percentile provides a good balance between user comfort and economics.

Vehicle Type	Width	Length
Small Cars	5'-8"	14'-10"
Large Cars	6'-2"	16'-8"
All Cars	6'-1"	16'-6"
Light Trucks	6'-8"	18'-11"
Vans	6'-8"	18'-3"
SUV's	6'-7"	17'-1"
Composite	6'-7"	17'-3"

The 2001 composite design vehicle, a vehicle the size of a Ford F150 Pickup, is 6'-7" wide by 17'-3" long. Parking dimensions have been developed to comfortably accommodate the composite design vehicle. It is important to note that, statistically, vehicle mixes do not vary much by region and locality.

Parking Space and Module Dimensions

A rational approach to parking space and module sizing supports dimensions for one-size-fits-all designs; that is, designing for the composite design vehicle. Requiring overly generous parking dimensions is a waste of resources. Generous dimensions often force owners to specify, if allowed by code, small-vehicle-only spaces to achieve a cost-effective design. Small-vehicle-only spaces are not effective today with the upsizing of vehicles, and should only be used on a limited basis. *Carl Walker, Inc.* recommends that small-vehicle-only spaces, typically 7'-6" x 15'-0", not exceed 15% of the total capacity of a facility.

The National Parking Association (NPA) and Urban Land Institute (ULI) in *The Dimensions of Parking (2000)* recommend, based on the size of the composite design vehicle, a 60'-0" parking module with 90° parking (18'-0" stalls and a 24'-0" drive aisle). The 24'-0" drive aisle recommended by NPA and ULI is based on a stall width of 8'-6". The interrelationship between drive aisle and parking space width is such that a wider space can permit a narrower drive aisle and vice versa. A 9'-0" wide parking stall is the maximum width recommended by NPA and is the appropriate width for moderate to higher turnover medical visitor parking. According to the published design criteria, to maintain the same level of service with wider stalls, the module can be reduced by three inches for each additional inch of stall width above 8'-6". In other words, a 58'-6" module is sufficient for 90° parking and 9'-0" stalls. NPA indicates a preference for keeping modules as narrow as possible by increasing stall width because "the public is more appreciative of a comfortable stall width than a modest decrease of maneuverability into the stall module."

The Institute of Transportation Engineers (ITE) in *Traffic Engineering Handbook (1992)* supports the 60'-0" parking module. ITE recommends a base parking module of 61'-0" for large vehicles. However, according to ITE, "the aisle may be narrowed by one foot or so without experiencing a major increase in congestion and accessibility of parking stalls. This would particularly apply in structures with high construction cost." ITE is, in effect, stating that a 60'-0" module is acceptable in parking structures.

Proposed Design in Other Areas

Following is a table listing 26 recent parking structures designed by *Carl Walker, Inc.* with 60'-0" wide or less parking modules that accommodate two-way traffic flow and 90° parking spaces. Listed are the project name, location, number of spaces, and bay width. The listed garages, located in eight states, range in size from 183 to 1,754 spaces. The bays range in size from 58 to 60 feet. According to information compiled from the

owners and operators of these structures, safety and user comfort have in no way been compromised in these facilities.

No.	Parking Garage	Location	Stall Count	90° Bay Widths
1.	1627 California	Denver, Colorado	183	58'-0"
2.	1890 Wynkoop	Denver, Colorado	207	58'-8"
3.	Old Albuquerque High School	Albuquerque, New Mexico	246	60'-0"
4.	Capitol Heights	Denver, Colorado	262	59'-0"
5.	800 Broadway	Denver, Colorado	273	58'-0"
6.	Double Eagle Casino	Cripple Creek, Colorado	296	59'-9"
7.	Bijou/Cascade	Colorado Springs, Colorado	305	60'-0"
8.	Craig Rehabilitation Hospital	Englewood, Colorado	331	59'-10"
9.	Bassett Street Residences	Denver, Colorado	331	58'-10"
10.	2200 Market Street	Denver, Colorado	373	59'-8"
11.	Summit at Broomfield	Broomfield, Colorado	379	59'-0"
12.	University Medical Center	Las Vegas, Nevada	438	60'-0"
13.	Fossil, Inc.	Richardson, Texas	451	60'-0"
14.	MSU-Billings	Billings, Montana	485	58'-8"
15.	Colorado Springs Police Operations	Colorado Springs, Colorado	528	60'-0"
16.	Children's Hospital	Phoenix, Arizona	610	60'-0"
17.	St. Julien Hotel	Boulder, Colorado	643	59'-0"
18.	Boise State University	Boise, Idaho	652	60'-0"
19.	Denver University Law School	Denver, Colorado	666	58'-0"
20.	15 th and Pearl Autopark	Boulder, Colorado	686	60'-0"
21.	Lucent Technologies Deck E	Westminster, Colorado	714	60'-0"
22.	Denver Zoo	Denver, Colorado	764	60'-0"
23.	Lucent Technologies Deck A	Westminster, Colorado	902	60'-0"
24.	St. Elizabeth Hospital	Lincoln, Nebraska	1,127	60'-0"
25.	University of Nebraska - 17 & R	Lincoln, Nebraska	1,236	60'-0"
26.	University of Arizona - 6th Street	Tucson, Arizona	1,754	58'-9"

Other Benefits

Although the main reason to reduce bay width is cost, there are other benefits associated with the narrower bays that will benefit the general public. In the schematic design phase, the wider (62'-0") parking bay indicated in TEDS was incorporated into the St. Mary's parking garage. While a wider garage can be accommodated on the designated site, it does not function as well on the site as a garage with 60'-0" bays. The narrower

garage allows greater sight lines along the adjacent road that provides access for emergency vehicles, thus making automobile travel less hazardous. It also provides for additional setback, which enhances turns both into and out of the garage. Better turns equate to shorter vehicle queues. The additional area along the road south of the garage can also be used for pedestrian foot travel. Because of an irrigation line easement, the wider garage cannot just be moved to the north and the added benefits of narrow facility realized.

Conclusion

The requested 60'-0" parking module is fully supported by state-of-the-art industry design standards and has been successfully used by *Carl Walker, Inc.* in the vast majority of recent projects throughout the western United States. The use of a 60'-0" parking module will in no way compromise public safety. On the contrary, it will benefit the general public by improving sight lines and providing additional area for pedestrian travel around the parking garage. A 62'-0" module is overly generous and, we believe, a waste of resources. The money saved by reducing two parking modules by two feet each could be put to a much more deserving use at the hospital.

From: Jody Kliska
To: Mike McDill
Date: 6/26/02 4:47PM
Subject: TEDS Exceptions

1. St. Mary's parking garage exception - The exception request lists 26 parking garage locations where the proposed parking module sizes have been used successfully, as well as noting other national standards. I can see granting this request. My assumption is that the St. Mary's parking garage is not intended for high turnover of vehicles.

With regard to your question about changing the TEDS standards for surface lots, I think we should do more research as well as some field trips. Walmart recently changed their parking to 90 degree from the angled parking. Assuming that it meets our current standards, it feels tight to me. I think my comfort level as a driver would feel threatened by the combination of narrower spaces and less aisle width in that location. According to the ITE Traffic Engineering Handbook, much of the alleged difficulty with 90 degree parking stems from inadequate aisle dimensions.

2. City Market deceleration tapers - I suggested to Trevor that he take this approach and use the reverse curves in place of the straight tapers. We have used the reverse curves in other locations and the relatively low speeds on the two streets lend themselves to using the reverse curves. We should probably look into revising the TEDS to allow this in future applications. I have added it to my list of items to review in TEDS.

MEMORANDUM



Date: June 27, 2002

*To: Bob Blanchard, Community Development
Rick Beaty, Fire Department*

From: Sandi Nimon, Sr. Administrative Assistant

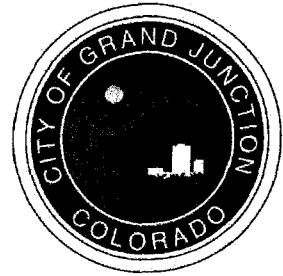
Sandi

*Subj: Design Exception from Minimum Parking Module
Width in St. Mary's Garage*

*Since Mark Relph will be back from vacation on July 1, please
send your comments to him via E-mail no later than
Wednesday, July 3.*

sn

MEMORANDUM



YBS
NDV

Date: June 28, 2002

*To: Bob Blanchard, Community Development
Rick Beaty, Fire Department*

From: Sandi Nimon, Sr. Administrative Assistant Sandi

*Subj: Design Exception to Allow Symmetrical Reverse
Curve Transitions for Right Turn Deceleration
Lanes*

*Since Mark Relph will be back from vacation on July 1, please
send your comments to him via E-mail no later than
Wednesday, July 3.*

sn