



of the garage should be evaluated and included to provide a “line of sight” for vehicles exiting from the interior of the garage.

#### *Circulation Turning Radii*

A number of turning radius concerns was identified in the garage review. These are each shown on the attached figure as B1-B4. The specific concerns that should be addressed in the final design are listed below.

#### B1, B3 & B4

The curb radius at these locations appears to be less than desirable and will create difficulty in maneuvering within and exiting the garage. A minimum of a 20-foot radius should be applied at these locations with 25-foot desirable.

#### B2

The design of the garage and the near 90-degree turn as shown is extremely constrained and will introduce the potential for wall and car damage from miscalculated turns. The circulation isle should be expanded and the 20-foot minimum turning radius applied here or the garage corner pulled back to provide a proper width for the turn.

#### *Design Dimensions*

Three (3) locations (C1 – C3) were also noted where the garage and site dimensions could be modified to provide improvements to the ramp and circulation system. These are:

1. By expanding the width of the garage (north-south axis) the ramp slope/grade could be reduced from 14% as shown to a grade closer to 10 % which is desirable.
2. The expansion of the garage and the retail units on the ground floor along the north wall could be accommodated up to 3 feet it appears by reducing the parking canoes (C2 and C3) and making a minor shift in the access drive location (A2). The skew created at the internal intersection should not be so significant as to present an issue.

#### *Summary & Recommendations*

Based on the findings listed above, we recommend the following design evaluations and modifications for the proposed MCC garage. Based on previous discussion with ACi Architects, we believe that these modifications can be made without significant changes to the building or garage designs.

1. Modify all corner curbs to reflect a minimum of a 20-foot radius
2. Evaluate and design the access drives to/from US 17-92 to meet all sight distance requirements
3. Consider modifications to the plan that will reduce the speed ramp grade from 14% to a point nearer 10 %, and most importantly
4. Modify the design of the plan to eliminate the turning movement constraints at the NW corner of the garage indicated on the attached figure at B2.

#### Finrock Municipal Garage

##### *Review Areas*

The primary areas of review for this garage were:

1. Access drive design on West Horatio Avenue
2. Internal aisle width and circulation system, and
3. Handicap space provisions

#### *Access Drive Design*

The access drive at West Horatio Avenue is designed without consideration for parking revenue collection facilities although a reasonable length for vehicle queuing is shown. However, attention will be needed to the amount of open wall the garage offers for sight distance as vehicles exit the garage. As shown on the current plan (07-28-14) the exiting vehicle will need to straddle the sidewalk to obtain visual clearance for oncoming traffic. This will impact pedestrian flow. Additionally, the bulb-out and parallel parking on West Horatio (west side of the north garage wall) may violate the required sight distance.

There is apparently only one (1) access point provided for the garage and with the potential of well above 300 spaces, this may not offer sufficient capacity for peak exiting periods without extended delays and queuing within the garage. Also, with the occurrence of an internal incident at the single access drive, the lack of an alternate exit point can be detrimental to occupant safety and general utilization.

#### *Internal Aisle & Circulation*

The garage aisle width dimensions are generally industry standard. Space depth and width appear to meet standards and the travel lanes would therefore be satisfactory. Reduction in these widths and lengths would be possible but would potentially impact construction/erection techniques and also the garage costs.

#### *Handicap Space Provisions*

The minimum number of spaces for the garage is indicated on the plan (Alternative 2) is 332 spaces. There are only four (4) handicapped spaces shown on the first floor of the garage (ground level) but two (2) spaces per level are included at the elevators on the 2<sup>nd</sup> and 3<sup>rd</sup> floors. This equates to a 2.5% ration and meets the industry standard.

#### *Summary & Recommendations*

Overall, the parking garage is designed to standard and has limited to no circulation, aisle, or space type issues. However, the single access drive could be problematic and the design for any access drive must be developed to minimize the potential conflicts with pedestrians and to also maintain proper clearance for sight distance of exiting vehicles.

