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McKinley Institute of Technology and North Star Academy Walking and Bicycling Audit

School Information
McKinley Institute of Technology ("McKinley") and North Star Academy ("North Star") are located on the same campus at 400 Duane Street in Redwood City. The schools are situated in a residential neighborhood within two blocks of El Camino Real. Sequoia High School is located adjacent to McKinley and North Star across the street on James Avenue.

McKinley serves approximately 400 students from grades 6th through 8th. North Star serves about 800 students in grades 3rd through 8th. Both schools are "Schools of Choice" that draw their enrollment from throughout Redwood City (as opposed to neighborhood schools that draw their enrollment from an attendance boundary).

McKinley and North Star share a designated drop-off and pick-up location on Duane Street in the mornings and afternoons. Diagonal parking spaces are temporarily coned off to form a curbside lane during the pick-up and drop-off times. Parents also tend to use James Avenue and Harrison Avenue for pick-up and drop-off. Both are narrow, two lane streets that primarily serve the surrounding residences.

Bell Schedule McKinley

<table>
<thead>
<tr>
<th>Grade 3–8</th>
<th>Morning</th>
<th>Afternoon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Days: M, Tu, W, F</td>
<td>8:00 a.m.</td>
<td>3:30 p.m.</td>
</tr>
<tr>
<td>Thursday Minimum Day</td>
<td>8:00 a.m.</td>
<td>1:30 p.m.</td>
</tr>
</tbody>
</table>

Bell Schedule North Star

<table>
<thead>
<tr>
<th>Grade</th>
<th>Morning</th>
<th>Afternoon</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regular Days: M, Tu, W, F</td>
<td>8:35 a.m.</td>
<td>2:55 p.m.</td>
</tr>
<tr>
<td>Thursday Minimum Day</td>
<td>8:00 a.m.</td>
<td>1:45 p.m.</td>
</tr>
</tbody>
</table>

Safe Routes to School Survey
The San Mateo County Office of Education conducted parent surveys at McKinley and North Star during the 2012-2013 and 2013-2014 school years. These surveys helped to assess multiple aspects of the Safe Routes to School program, including the current mode share when students travel to and from school and parental concerns about walking or bicycling to school. Key findings are reported below:

- Riding in a family vehicle is the most common mode of travel for both schools. More than half (52%) of McKinley students are driven in a family vehicle, while nearly two-thirds (65%) of North Star students arrive by car (non-carpool).

- A large portion of McKinley students walk to school. Thirty-six (36) percent of McKinley students walk to school. Around 12 percent of North Star students walk to/from school.

- Most North Star students travel to/from school by family car. Eighty (80) percent of North Star students arrive by family car either alone (65 percent) or in a carpool (15 percent). More than half (52 percent) of McKinley students arrive by family car and another six (6) percent arrives in a carpool.

- Bicycling mode share has potential for significant increase. Four (4) percent of McKinley and North Star students chose bicycling as their mode to get to and from school.

- Traffic considerations are the highest priority issues for parents when deciding whether to walk or bike to school. Intersection crossings, the volume of traffic, and the speed of traffic were identified by parents as the top three factors that limit their child's ability to walk or bike to school, as summarized in the parent survey.

A walking and bicycling audit was held on the morning of May 28th, 2014. The audit group included McKinley and North Star Principals, parents, and representatives from the Redwood City Police and Engineering Departments, and the Redwood City 2020 Committee. The audit was facilitated by Parisi Transportation Consulting (Parisi). Audit participants observed the morning arrival period, including travel behavior by pedestrians, bicyclists, motorists, and public transit vehicles, and noted transportation infrastructure issues at the school site and in the surrounding neighborhood. A follow-up afternoon visit was conducted by Parisi the following day. Photographs collected during both visits are presented in a later section.

**Infrastructure Observations**

**DUANE STREET:**
- The parking zone on the west side of Duane Street serves as the designated student loading zone.
- The planting strip in front of the school is unpaved and unplanted.
- There are physical bulb-outs on the north end of Duane Street at James Avenue, and painted "bulb-outs" on the south end at Harrison Avenue.

**JAMES AVENUE:**
- The City has constructed bulb-outs to shorten the crossing distance across James Avenue at several intersections.
- The City has installed pedestrian crossing and warning signs, high-visibility crosswalks, and advance yield lines.

**HARRISON AVENUE AT DUANE STREET:**
- The City provides a crossing guard at the intersection.
- Drivers dropping off or picking up students were observed making illegal U-turns within the intersection to bypass downstream queues on Duane Street.
- Drivers were observed ignoring the crossing guard and illegally failing to observe the pedestrian right of way.

**JEFFERSON AVENUE AT CLEVELAND AND CLINTON STREETS:**
- The City provides a crossing guard across Cleveland Street. Some motorists were observed failing to yield to pedestrians even with the crossing guard present.
- Vehicle queues at Cleveland and Clinton Streets often develop because of the difficulty turning onto Jefferson Avenue, which is due to high traffic volumes, high speed, and limited intersection visibility. The schools advise parents not to make left turns onto Jefferson Avenue.

**Behavioral Observations**

**DUANE STREET:**
- School staff assist in managing the pick-up / drop-off of students on Duane Street by guiding vehicle movement.
- Parked cars that fail to vacate the spaces reduce the capacity of the loading zone by blocking traffic.

**Improvement Plan**

Recommendations for the school and surrounding neighborhood appear in the following pages.

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**Parent Survey**

Do any of the following issues limit your child's ability to walk or bike to/from school?

<table>
<thead>
<tr>
<th>Issue</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unsafe intersections</td>
<td>92%</td>
</tr>
<tr>
<td>Speeding traffic along route</td>
<td>91%</td>
</tr>
<tr>
<td>Too much traffic along route</td>
<td>91%</td>
</tr>
<tr>
<td>Lack of bikeways</td>
<td>63%</td>
</tr>
<tr>
<td>Too far from school</td>
<td>61%</td>
</tr>
<tr>
<td>No crossing guards</td>
<td>60%</td>
</tr>
<tr>
<td>Child's before or after school activities</td>
<td>54%</td>
</tr>
<tr>
<td>Stranger danger</td>
<td>50%</td>
</tr>
<tr>
<td>Lack of sidewalks and/or paths</td>
<td>50%</td>
</tr>
<tr>
<td>No adults to walk or bike with</td>
<td>50%</td>
</tr>
<tr>
<td>Violence/crime in neighborhood</td>
<td>28%</td>
</tr>
<tr>
<td>Don't know best route to school</td>
<td>12%</td>
</tr>
<tr>
<td>Lack of bike parking at school</td>
<td>10%</td>
</tr>
</tbody>
</table>

Members of the audit team included school principals, parents, and representatives from Redwood City 2020, Engineering, and Police Departments.

A high portion of McKinley students walk to school (36 percent).

The City provides a crossing guard at the intersection at Jefferson Avenue and Cleveland Street.

A crossing guard at Duane Street and Harrison Avenue manages two crosswalks.

High visibility crosswalk across James Avenue.

Duane Street is a 56-foot wide two-lane street.

Duane Street at James Avenue has bulb-outs that shorten the pedestrian crossing distance.

Bulb-outs have been painted at Duane Street and Harrison Avenue.

The walking environment on Harrison Avenue has narrow and broken pavement, and power poles.

There are instances of broken pavement and unplanted/paved landscaping strips on Duane Street.
School staff manage the drop-off / pick-up area.

Cars that fail to vacate the parking spaces worsen traffic congestion by shortening the loading area.

Traffic congestion on Duane Street regularly backs onto James Avenue.

A motorist driving into the opposing traffic lane to bypass the queue on Duane Street.

Duane Street is too narrow for most vehicles to make U-turns in one motion, exacerbating traffic congestion.

Cleveland Street and Clinton Street often experience congestion during the school peaks.

Cars blocking the crosswalk can create line-of-sight hazards for pedestrians.

East-west traffic on Jefferson Avenue is uncontrolled at Clinton Street and Cleveland Street.
MCKINLEY INSTITUTE OF TECHNOLOGY AND NORTH STAR ACADEMY WALKING AND BICYCLING AUDIT

Appendix B: Potential Safe Routes to School Improvements

(1) James at Grand:
- Consider installing a speed feedback sign.

(2) James / Elwood:
- Consider installing a Rectangular Rapid Flashing Beacon (RRFB).

(3) Duane / James:
- Refresh red curb within 20’ of crosswalks
- Evaluate potential need for a crossing guard
- Consider all-way-stop control

(4) James between Grand and Birch:
- Consider installing raised crosswalks at Elwood, Duane, and/or Clinton to slow traffic and emphasize pedestrian crossings.

(5) Harrison west cul-de-sac:
- Consider installing a gate to provide access to the school.
- Consider constructing a multi-use path connecting Harrison across the creek.

(6) Duane between James and Harrison:
- Install “No Parking 7:30–9am M–F, 2:30–4pm M–W & F, and 1–2 Th”
- Trim trees to improve street visibility.
- Install pavers over the unplanted sidewalk buffer strip.

(7) Duane / Harrison:
- Paint red curb within 20’ of crosswalks at the northwest and southwest corners.
- As an interim measure, supplement painted “bulb-outs” with safe-hit posts.
- Construct bulb-outs as indicated by the paint with new sidewalk, curb, gutter, and curb ramps.

(8) Samtrans Route 274:
- Consider rerouting Route 274 to stay on Jefferson between Hudson and El Camino rather than diverting to Hudson-James.
- Consider the bus reroute in conjunction with pedestrian crossing improvements on Jefferson.

(9) Harrison between Cleveland and Duane:
- Construct curb and sidewalk between crosswalk and school entry gate.
- Consider constructing an ADA-compliant bridge across the creek.

(10) Jefferson at Clinton and Cleveland:
- As an interim measure, consider prohibiting southbound left turns with “No Left Turns 7–9am 1–4pm MON–FRI” sign (R33A (CA)) from Cleveland and Clinton.
- Study whether fences on corner lots conform to Redwood City fence standards for maximum height and visibility.
- Construct bulb-outs at the northwest and southwest corners of Jefferson / Cleveland with ADA-compliant curb ramps.
- Construct ADA-compliant curb ramp at the southeast corner of Jefferson / Cleveland.
- Consider removing parking to provide left-turn pockets for east/west-bound traffic.
- Reconstruct driveways on Jefferson to eliminate sidewalk cross-slopes.
- Consider installing a traffic signal at Cleveland. There is an existing pedestrian crossing signal at Clinton.

(11) Jefferson from Hudson to El Camino Real:
- Consider a road diet (i.e., reducing roadway’s vehicle travel lanes from four to three) that would add Class II bike lanes.

(12) Clinton at Harrison:
- Paint high-visibility crosswalks.
<table>
<thead>
<tr>
<th>#</th>
<th>Location</th>
<th>Recommendation</th>
<th>Lead Agency</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>James at Grand</td>
<td>Consider installing a speed feedback sign.</td>
<td>City</td>
<td>Medium</td>
</tr>
<tr>
<td>2</td>
<td>James at Elwood</td>
<td>Consider installing a Rectangular Rapid Flashing Beacon (RRFB).</td>
<td>City</td>
<td>Medium</td>
</tr>
<tr>
<td>3a</td>
<td>James at Duane</td>
<td>Refresh red curb within 20' of crosswalks.</td>
<td>City</td>
<td>Short</td>
</tr>
<tr>
<td>3b</td>
<td>James at Duane</td>
<td>Evaluate the potential need for a crossing guard.</td>
<td>City</td>
<td>Short</td>
</tr>
<tr>
<td>3c</td>
<td>James at Duane</td>
<td>Consider all-way-stop control.</td>
<td>City</td>
<td>Medium</td>
</tr>
<tr>
<td>4</td>
<td>James between Grand and Birch</td>
<td>Consider installing raised crosswalks at Elwood, Duane, and/or Clinton to slow traffic and emphasize pedestrian crossings.</td>
<td>City</td>
<td>Medium</td>
</tr>
<tr>
<td>5a</td>
<td>Harrison west cul-de-sac</td>
<td>Consider installing a gate to provide access to the school.</td>
<td>School</td>
<td>Medium</td>
</tr>
<tr>
<td>5b</td>
<td>Harrison west cul-de-sac</td>
<td>Consider constructing a multi-use path connecting Harrison across the creek.</td>
<td>City/School</td>
<td>Long</td>
</tr>
<tr>
<td>6a</td>
<td>Duane from James to Harrison</td>
<td>Install &quot;No Parking 7:30-9am M-F, 2:30-4pm M-W &amp; F, and 1-2 Th&quot;</td>
<td>City</td>
<td>Short</td>
</tr>
<tr>
<td>6b</td>
<td>Duane from James to Harrison</td>
<td>Trim trees to improve street visibility.</td>
<td>City</td>
<td>Short</td>
</tr>
<tr>
<td>6c</td>
<td>Duane from James to Harrison</td>
<td>Install pavers over the unplanted sidewalk buffer strip.</td>
<td>City/School</td>
<td>Short</td>
</tr>
<tr>
<td>7a</td>
<td>Duane / Harrison</td>
<td>Paint red curb within 20' of crosswalks at the northwest and southwest corners.</td>
<td>City</td>
<td>Short</td>
</tr>
<tr>
<td>7b</td>
<td>Duane / Harrison</td>
<td>As an interim measure, supplement painted &quot;bulb-outs&quot; with safe-hit posts.</td>
<td>City</td>
<td>Short</td>
</tr>
<tr>
<td>7c</td>
<td>Duane / Harrison</td>
<td>Construct bulb-outs as indicated by the paint with new sidewalk, curb, gutter, and curb ramps.</td>
<td>City</td>
<td>Medium</td>
</tr>
<tr>
<td>8</td>
<td>Samtrans Route 274</td>
<td>Consider rerouting Route 274 to stay on Jefferson between Hudson and El Camino rather than diverting to Elwood-James. Consider the bus route in conjunction with pedestrian crossing improvements on Jefferson.</td>
<td>Samtrans</td>
<td>Long</td>
</tr>
<tr>
<td>9a</td>
<td>Harrison between Cleveland and Duane</td>
<td>Construct curb and sidewalk between crosswalk and school entry gate.</td>
<td>City</td>
<td>Medium</td>
</tr>
<tr>
<td>9b</td>
<td>Harrison between Cleveland and Duane</td>
<td>Consider constructing an ADA-compliant bridge across the creek.</td>
<td>City</td>
<td>Long</td>
</tr>
<tr>
<td>10a</td>
<td>Jefferson at Clinton and Cleveland</td>
<td>As an interim measure, consider prohibiting southbound left turns with &quot;No Left Turns 7–9am 1–4pm MON–FRI&quot; sign (R31A (CA)) from Cleveland and Clinton.</td>
<td>City</td>
<td>Short</td>
</tr>
<tr>
<td>10b</td>
<td>Jefferson at Cleveland</td>
<td>Study whether fences on corner lots conform to Redwood City fence standards for maximum height and visibility.</td>
<td>City</td>
<td>Short</td>
</tr>
<tr>
<td>10c</td>
<td>Jefferson at Cleveland</td>
<td>Construct bulb-outs at the northwest and southwest corners with ADA-compliant curb ramps.</td>
<td>City</td>
<td>Medium</td>
</tr>
<tr>
<td>10d</td>
<td>Jefferson at Cleveland</td>
<td>Construct ADA-compliant curb ramp at the southeast corner.</td>
<td>City</td>
<td>Medium</td>
</tr>
<tr>
<td>10e</td>
<td>Jefferson at Cleveland</td>
<td>Consider removing parking to provide left-turn pockets for east/west-bound traffic.</td>
<td>City</td>
<td>Medium</td>
</tr>
<tr>
<td>10f</td>
<td>Jefferson between Clinton and Cleveland</td>
<td>Reconstruct driveways to eliminate sidewalk cross-slopes.</td>
<td>City</td>
<td>Medium</td>
</tr>
<tr>
<td>10g</td>
<td>Jefferson at Cleveland</td>
<td>Consider installing a traffic signal at Cleveland.</td>
<td>City</td>
<td>Long</td>
</tr>
<tr>
<td>11</td>
<td>Jefferson from Alameda to El Camino</td>
<td>Consider a road diet (i.e., reducing the roadway's vehicle travel lanes from four to three) that would add Class II bike lanes.</td>
<td>City</td>
<td>Long</td>
</tr>
<tr>
<td>12</td>
<td>Clinton at Harrison</td>
<td>Paint high-visibility crosswalks.</td>
<td>City</td>
<td>Short</td>
</tr>
</tbody>
</table>
Turn restrictions can reduce vehicular conflicts and traffic volumes on specific streets.

STOP signs may be installed where pedestrian volumes or other safety considerations warrant.

Rectangular Rapid Flash Beacons increase yield compliance at uncontrolled crossings.

Red curb paint delineates areas where parking is prohibited.

Signalized pedestrian crossings provide opportunities for pedestrians to cross safely.

Time of day NO PARKING restrictions alert motorists when loading activities occur.

Curb ramps provide access to disabled pedestrians and parents walking with strollers.

Curb extensions shorten pedestrian crossing distance and enhance visibility.

Sidewalk widening can enable pedestrians to walk side-by-side or to pass each other.

Road diets calm traffic provide space for bicyclists, and can provide pedestrian refuges.

Raised crosswalks encourage motorists to travel more slowly through pedestrian crossings.

Driver speed feedback signs are another measure to reduce traffic speeds.
Example of Signing for School Zone with a School Speed Limit and a School Crossing

Example of Signing for School Crosswalk Warning Assembly

California MUTCD 2012 Edition
Chapter 7B – Signs, page 1279. Figure 7B-104(CA). Part 7 – Traffic Control for School Areas. January 13, 2012

California MUTCD 2012 Edition
Chapter 7B – Signs, page 1274. Figure 7B-5(CA). Part 7 – Traffic Control for School Areas. January 13, 2012
McKinley Institute of Technology and North Star Academy encourage parents to walk or bike with their children and use this mapping tool to explore options for commuting between home and school. Parents are responsible for choosing the most appropriate route based on their knowledge of conditions along the route and the experience level of their child.