2.01 Alternative 1 – Rehabilitate the Existing Tunnel

Two main rehabilitation options exist:

1. Grouting and patching: Grouting stabilizes the earth above the tunnel and patching will provide a temporary fix to deteriorated portions of the tunnel. Grouting tends to damage track beds and is not generally an acceptable option with the Railroad. Patching is not guaranteed to last and future maintenance of the patching will be required.

2. Lining: Lining the tunnel will reduce the already confining tunnel and would appear unwelcoming/dangerous to users. When designing tunnels, it has been found that pedestrians are generally most concerned about the security and size of a tunnel. The recommended tunnel size is 10 feet high x 14 feet wide.

Due to the limitations at the existing site, rehabilitation options can only be considered temporary. Due to the age and extent of deterioration, track closures and reconstruction of highly deteriorated locations are necessary. Although further testing can determine the extent of damage at localized locations, it is not possible to determine the full extent of deterioration or damage for the entire tunnel and will only provide general information.

Rehabilitation would be extensive and require regular inspections to ensure that further or new deterioration has not occurred. Any rehabilitation beyond general patching would require track closures and expensive special construction methods would be necessary.

Funding sources for rehabilitation are much more limited than for new construction and would generally require Americans with Disabilities Act (ADA) accessibility be provided. Since the at-grade crossing is adjacent to the tunnel, it is possible to use the crossing to comply with the ADA if reconstruction is limited to 15% of the replacement costs and the project is funded solely by the Village. Since the cost of rehabilitation will exceed 15% (~$500,000) of the replacement costs, then ramps or elevators will be required to comply with ADA requirements.

The tunnel is showing extensive areas of damage including delamination of the plaster, deteriorating grout between the masonry blocks, and deteriorating masonry blocks. This damage is obvious near the tunnel's south entrance where plaster has spalled and exposed the deteriorating structure over an area of more ten (10) feet in length.

Based upon the condition and age of the tunnel and ADA requirements, rehabilitation of the existing tunnel is not a feasible solution.

2.02 Alternative 2 – Replace the Existing Tunnel

Three main alternatives exist for tunnel replacement and are shown in Attachment 6:

1. Replacement at the Existing Alignment
2. New West Alignment
3. New East Alignment

A. At the Existing Alignment

1) A new tunnel would require ADA compliance under a ruling issued September 6, 1991 by the U.S. Department of Transportation. For additional details, refer to the Permitting and Environmental Studies summary included in Attachment 3. Options for accessibility are the use of elevators or ramps. The use of an elevator would require modifications to the existing station canopy and platform. The use of ramps would greatly impact the existing platform and station as shown in Attachment 6. The Riverside Station is a protected historical structure and impacts to the structure would need to be limited.

2) A new tunnel would need to be wider and taller than the existing tunnel. Difficult and specialized construction methods would be necessary to limit impacts to the existing station and work within railroad track closures.

3) Due to site limitations and station impacts, it is anticipated that the costs will be higher than a similar replacement on a new alignment.

B. Alignment #1A and #1B – West Tunnel Alignment

1) This alignment moves the tunnel approximately 300 feet to the west, provides a switchback ramp (5% slope) on the south side to land on the end of the south platform (a stair to the sidewalk near the commuter parking lot is feasible), and provides a switchback ramp (5% slope) to the existing sidewalk near the north platform.

2) This alignment provides convenience to commuters and users of the swim club.. Since a majority of the tunnel users are commuters this would provide a direct benefit. This location, however, would not provide much benefit to users to the east of the station.

3) This alignment places the tunnel in a vacant area near the station and will have minimal impact to the existing platforms.

4) This option affords the easiest construction access and can use typical under rail construction methods. The anticipated construction cost of the West Tunnel Alignment is $3.2 million.

C. Alignment #2 – East Tunnel Alignment

1) This alignment moves the tunnel approximately 165 feet to the east, provides a switchback ramp (5% slope) on the south side to land at the sidewalk along Riverside Road (a stair to the platform exiting the tunnel immediately is also feasible), and provides a switchback ramp (5% slope) on the north side to land at the sidewalk along Riverside Road (a stair exiting the tunnel immediately is feasible).

2) This alignment provides similar benefits to the existing tunnel. It is anticipated that tunnel use would be similar to the current use.

3) This alignment provides convenience to area business customers.

4) Although impact to the existing platforms and stations would be minimized, some of the land currently used by the Chew Chew Café for outside seating would be lost. A dumpster enclosure and ComEd transformer pads planned for the future development of the Arcade building will need to be relocated. Mature trees on the south side of the tracks would also need to be removed.

5) There are several utilities in the area, including the railroad signal enclosure, that would need to be relocated.

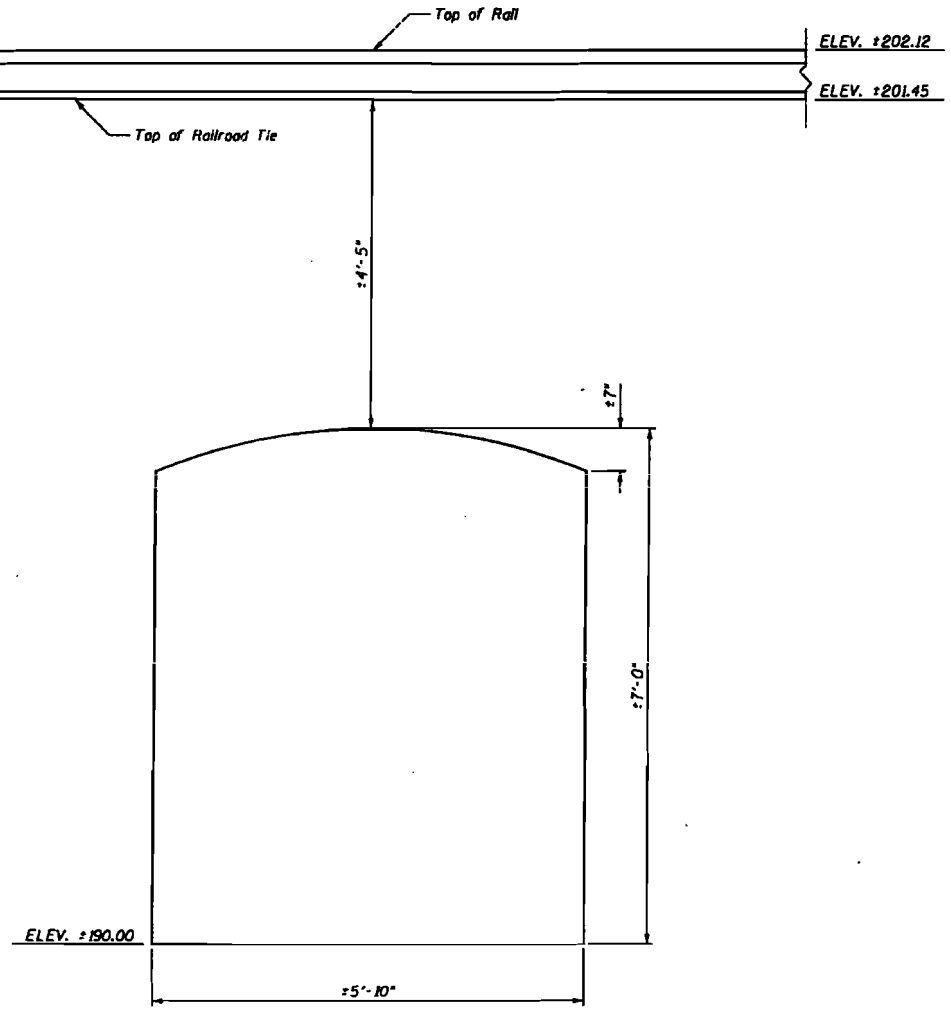
6) Construction access to this area is limited and would require a high level of coordination and special construction methods may be needed. The anticipated cost of the East Tunnel Alignment is $3.6 million.

2.03 Alternative 3 – Abandon the Existing Tunnel

The existing tunnel is approximately 90 years old and deteriorating rapidly. The existing tunnel is generally used by approximately 35 people daily. There are approximately 500 potential daily users of the tunnel. Of those potential users, approximately 170 of them are under the age of 18. Most of the users are commuters that access the tunnel while a train is at the station and walk to the commuter parking lot.

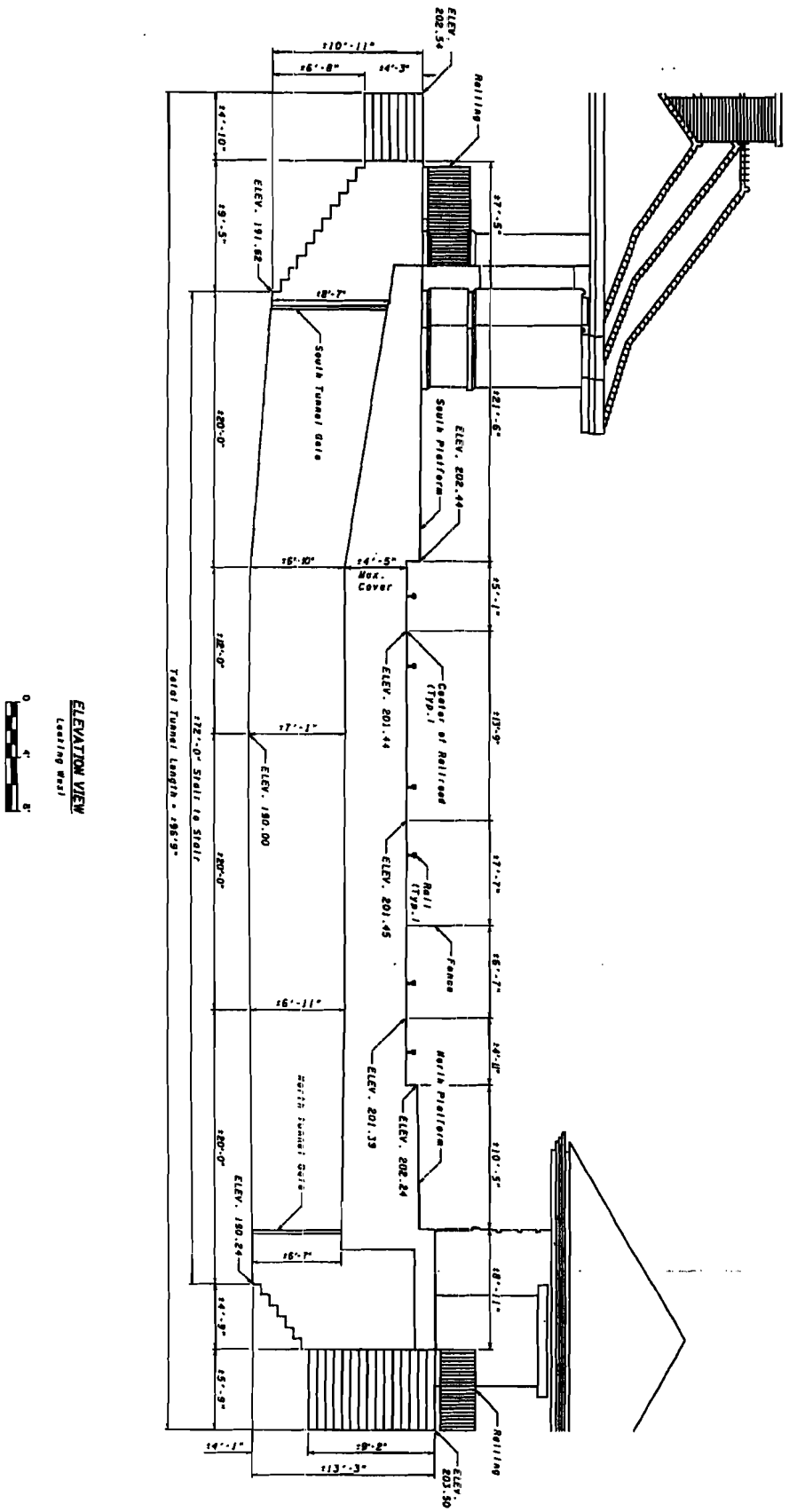
Abandonment is necessary with all replacement options. Simply abandoning the tunnel is the most economical option considering the current number of users and the high cost associated with replacement. However, abandonment of the existing tunnel without replacement creates a potential safety hazard, especially during the summer weeks when the swim club is busy.

ATTACHMENT 1
EXISTING TUNNEL ELEVATION AND CROSS SECTION



TYPICAL TUNNEL CROSS-SECTION

0 1' 2'



EXISTING TUNNEL ELEVATION VIEW

BNSF/METRA PEDESTRIAN TUNNEL STUDY
VILLAGE OF RIVERSIDE
RIVERSIDE ILLINOIS

STRAND ASSOCIATES INC. ENGINEERS

6-600-002
FIGURE NO.

ATTACHMENT 2
PEAK HOUR DEMOGRAPHIC COUNT SUMMARY

Demographic Usage Counts

Peak Weekday Use: (5:30 a.m. - 8:30 a.m. and 3:00 p.m. - 4:00 p.m.)

Approximate Age Group

	0-12	13-18	19-25	26-35	35-50	50+	Total
Tunnel	2	13	6	7	7		35
At Grade	88	82	42	87	76	34	409

Peak Weekend Use: (11:00 a.m. - 1:00 p.m.)

Approximate Age Group

	0-12	13-18	19-25	26-35	35-50	50+	Total
Tunnel				3			3
At Grade	48	19	16	25	40	44	192

ATTACHMENT 3
SUMMARY OF METRA DATA, FUNDING SOURCES, AND PERMITTING REQUIREMENTS

Metra Planning Information

Metra collects a wealth of information about their riders. This information provides useful insight into the need for and location of the Riverside pedestrian tunnel. The information is summarized in the following tables and figures.

Ridership Levels

There were 438 riders at the station in 2002 (the last Metra boarding count date). This number has been decreasing slightly over the last 15 years. The vast majority of riders (82%) board in-bound trains during the typical morning peak period resulting in off-peak ridership (mid day and evening) that is light. This means that commuter/train conflicts are concentrated in time and happen when most of the trains are fast moving commuter trains rather than the off-peak freight trains, making the use of a pedestrian tunnel more desirable.

Metra uses Northeastern Illinois Planning Commission (NIPC) demographic information to forecast future ridership. The 2030 forecasts for Riverside population, employment and households all show little change from current levels. Population is projected to increase about 5% and employment about 8% by the year 2030. Therefore, Metra ridership could be expected to remain at the current levels of 450 to 500 riders.

Table 1 Historical Rider Information

Year	1987	1989	1991	1993	1995	1997	1999	2002
Total	510	583	468	490	482	492	466	438
AM Peak	445	484	377	395	391	401	359	361

Station Mode of Access

One half of all riders walk to the Riverside station. For those living within ½ mile of the station, this number jumps to 89% off all riders. Auto drivers represent only 36% of all riders at the station while the remaining 14% of riders are dropped off. Another interesting statistic is that two-thirds of the riders come from within 1 mile of the station. Therefore, it is important that the tunnel location be as convenient as possible to those walking to the station (i.e. as close as possible to their walking path). The following table summarizes mode of access to the station by distance to the station.