Phase 1a Archaeological Investigation

Southwest Light Rail Transit

Hennepin County, Minnesota

CH2M HILL, Inc.—Project No. 474576

SDEIS Areas:

Eden Prairie Segment

Hopkins Operations and Maintenance Facility

St. Louis Park/Minneapolis Segment

March 2014

PHASE 1A ARCHAEOLOGICAL INVESTIGATION FOR THE PROPOSED SOUTHWEST LRT PROJECT, HENNEPIN COUNTY, MINNESOTA

SDEIS Areas:
Eden Prairie Segment, Hopkins Operations and Maintenance Facility, and St. Louis Park/Minneapolis Segment

CH2M Hill, Inc. Project No. 474576
SHPO File No. 2009-0080
106 Group Project No. 1695

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March 2014

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1 Introduction

The proposed Southwest LRT project consists of the construction of an approximately 16-mile proposed light rail alignment that will operate from downtown Minneapolis through the southwestern suburban cities of St. Louis Park, Hopkins, Minnetonka, and Eden Prairie, passing in close proximity to the city of Edina. This proposed project is receiving funding from the Federal Transit Administration (FTA) and, therefore, must comply with the National Environmental Policy Act (NEPA) and Section 106 of the National Historic Preservation Act of 1966, as amended (Section 106).

During August, October, and December of 2013, The 106 Group Ltd. (106 Group) conducted a Phase 1a Archaeological Investigation of newly proposed adjustments to the Locally Preferred Alternative (LPA) for the Southwest LRT Project (Green Line Extension; formerly referred to as the Southwest Transitway Project). The proposed adjustments were identified as part of Project Development activities, initiated by the Metropolitan Council (Council) in January 2013, to progress the project's design and respond to comments received on the Draft Environmental Impact Statement (DEIS). The DEIS was published in October 2012, with a public comment period concluding on December 31, 2012. A Phase Ia of the LPA was included in Appendix H of the DEIS (SWCA, 2012). This investigation examines newly proposed adjustments to the LPA by the Council in the fall of 2013 in Eden Prairie (Eden Prairie Segment) and in St. Louis Park and Minneapolis (St. Louis Park/Minneapolis Segment), and one potential OMF location in Hopkins (Hopkins OMF) that will be evaluated in a Supplemental Draft EIS (SDEIS) being prepared for the project. These proposed adjustments were recommended by the Southwest LRT Project Office (SPO) to the Corridor Management Committee in October 2013 and are anticipated to be part of the Council's decision on the Project's scope and budget in spring of 2014. If, after this action, there are additional changes to the project's scope, the APE will be reviewed and adjusted as needed.

The Minnesota Department of Transportation (MnDOT) Cultural Resources Unit (CRU) is acting on behalf of the FTA for many aspects of the Section 106 process, including identifying the project area of potential effect (APE), surveying and evaluating historic properties, assessing potential effects, and consulting with the State Historic Preservation Office and other interested parties Therefore, the Council consulted with the MnDOT CRU to determine an appropriate APE and scope of cultural resources investigations for the project (see the SWLRT Research Design, Attachment A). The SDEIS areas (Eden Prairie Segment, Hopkins OMF, and St. Louis Park/Minneapolis Segment) for the Southwest LRT Project are located in Hennepin County, Minnesota (Attachment B: Figure 1, Table 1).

Table 1. Legal Description of Sections Crossed by the Current Study

County	Township	Range	Sections
Hennepin	28	24	5, 6
Hennepin	29	24	28, 29, 32
Hennepin	116	22	10, 11, 12, 14, 15, 16
Hennepin	117	21	16, 17, 20, 21
Hennepin	117	22	25, 26

This Phase 1a report is intended to provide an understanding of the archaeological potential for the proposed SDEIS areas as identified through existing site and survey documents, historical maps, historical aerial photos, and topographic maps.

The APE for the proposed SDEIS areas encompasses approximately 452 acres (183 hectares [ha]). To provide a broader cultural context for the APE and aid in assessing archaeological potential, previously identified archaeological sites located within one mile of the project area were also identified. Should the

SDEIS areas for the Southwest LRT Project be altered from the present proposal, the APE for archaeological resources should be adjusted, as appropriate.

2 Methodology

2.1 Area of Potential Effect

The archaeological APE for the SDEIS areas (SDEIS APE) is based on the parameters set in the overall research design for the Southwest LRT project (Attachment A). The SDEIS APE extends 100 feet on either side of current engineering alignments with a 500-foot radius around the center point of any proposed station areas. In addition, in certain locations, the SDEIS APE was expanded to encompass areas within the proposed construction limits for the project, which were received for the SDEIS areas in August, October, and November of 2013. This included but was not limited to the construction limits for such items as proposed improvements to intersecting roadways or park-and-ride lots. An APE for proposed OMFs, which was not previously defined in the research design, encompasses 500 feet around the construction footprint for any proposed OMF. This is to account for potential direct impacts from construction or development activities. This is based on the APE used for the station areas in the research design, since the impact of construction activities in the OMF areas is similar to construction activities in the station areas.

2.2 Background Research

Historical plat maps, aerial photographs, and topographic maps were examined to identify areas of high precontact and contact period archaeological potential as well as post-contact period archaeological potential. Maps and aerial photographs were also reviewed to identify ground disturbing activities in the post-contact period that likely have destroyed archaeological sites, thereby eliminating areas from further study.

Map collections consulted were: the Sanborn maps at the Hennepin County Library, the collections of the Minnesota Historical Society, and the Borchert Map Library at the University of Minnesota. In addition, digital maps from the U.S. Geological Survey (USGS) were consulted as well as General Land Office (GLO), and Trygg historical maps (1966).

2.3 Environmental Setting

The environmental setting has been developed in the previous Phase 1a investigations, which this report supplements (Harrison and Madson 2010; Arnott 2012).

2.4 Contextual Background

The precontact and contact period contexts have been presented in *Phase 1a Archaeological Investigation for the Proposed Southwest Corridor Transitway Project, Hennepin County, Minnesota* (Harrison and Madson 2010). Historical contexts for the project have been previously created for the Phase 1a archaeological studies, architectural history documents, and the Phase I archaeological survey (Arnott 2012; Goodson 2010, 2012; Harrison and Madson 2010; Harrison et al. 2012; Roise et al. 2012; Schmidt and Vermeer 2010).

2.5 Previous Investigations

2.5.1 Previous Surveys

On August 6th and 7th, 2013, background research was conducted using the State Historic Preservation Office (SHPO) site files for information on previously identified archaeological sites and on cultural resources surveys previously conducted within the APE. In addition, to provide a broader context for the area, previously identified archaeological sites located within one mile (1.6 kilometers [km]) of the APE were also reviewed. Multiple documentary sources were consulted including aerial photographs, historical plat maps, and USGS topographic maps. In addition, early land surveyor notes as represented by the Trygg maps were reviewed to determine potential contact period and post-contact archaeology resources (Trygg 1966). No site visit was undertaken.

Research indicates that there have been four previous investigations within the SDEIS APE. On May 8-9, 1998, Archaeological Services, Illinois State Museum Society conducted a Phase I archaeological survey for the ADC Corporate Campus project in Eden Prairie, Hennepin County, Minnesota. During the survey one precontact site, 21HE0289, was identified and was recommended not eligible for listing in the National Register of Historic Places (NRHP) (Rickers 1998) (Attachment B: Figure 2a).

In 2010, HDR Engineering, Inc. and Archaeological Research Services conducted a Phase 1a archaeological investigation for the Southwest LRT Project. The assessment identified 48 areas along the corridor as having archaeological potential. Intensive archaeological inventory and assessment was recommended for any areas that may fall within a selected project segment (Harrison and Madson 2010) (Attachment B: Figures 2a-c).

In June of 2012, SWCA Environmental Consultants (SWCA) conducted a Phase 1a archaeological investigation for the freight rail relocation corridor to supplement the 2010 Phase 1a investigation completed for the Southwest LRT Project. Three new areas of archaeological potential were identified as part of the study. The study area also included two areas of archaeological potential previously identified during the 2010 study. A combination of archaeological survey and non-invasive testing was recommended for these five areas (Arnott 2012) (Attachment B: Figures 2b-c).

Between June and November, 2012, SWCA conducted a Phase I archaeological survey for those portions of the Southwest LRT Project included in the LPA. Forty-four areas of archaeological potential that were previously identified during the Phase 1a studies were investigated, seventeen of which are within the SDEIS APE (Attachment B: Figures 2a-c). Within those seventeen areas, SWCA identified four sites for additional investigation, all of which are within the SDEIS APE for St. Louis Park/Minneapolis Segment. In addition, one area of archaeological potential was identified as being of "modern construction" and not investigated (Area 4:g) (Harrison et al. 2012). Another area previously recommended for archaeological survey in the Phase 1a study for the project (Area 3:b) (Harrison and Madson 2010) was later removed from the Phase I survey as it was outside the APE (Harrison et al. 2012).

2.5.2 Previously Identified Sites

Due to the sensitive nature of the information contained in this section, it has been redacted and will not be provided except by request to the Metropolitan Council.

3 Archaeological Site Potential

Three areas of archaeological potential were identified within the SDEIS APE. These areas have potential for precontact and contact period archaeological resources (Attachment B: Figures 4a-g, Table 4).

In addition, four previously identified archaeological sites were identified within the SDEIS APE (see Table 2 above). All of these sites are located within the St. Louis Park/Minneapolis Segment. The sites are *potentially* eligible for listing in the NRHP and Phase II investigations are underway to determine their eligibility for listing in the NRHP (Harrison et al. 2012).

Table 2. Areas of Archaeological Potential within SDEIS APE

SDEIS Area	Areas with Archaeological Potential	Type of Archaeological Potential
Eden Prairie Segment	Areas A, B, and C	Precontact, Contact
Hopkins OMF	None	N/A
St. Louis Park/Minneapolis Segment*	None	N/A

**There are four previously identified sites within the APE for this SDEIS segment, which are currently under evaluation (see Section 2.5.2).*

3.1 Eden Prairie Segment

Three areas were identified in the Eden Prairie Segment APE as having potential for precontact and contact period archaeological resources and no areas were identified in the Eden Prairie Segment as having potential for post-contact archaeological resources.

3.1.1 Eden Prairie Segment - Areas of Archaeological Potential

3.1.1.1 Area A

This area is a cluster of three small ponds located in close proximity to each other. Historical aerial photographs (1937-1971) indicate that this area was historically farmland. No structures appeared to be located near these ponds on historical aerial photographs, historical plat maps (Wright 1873, Dahl 1898, Westby 1913), or Trygg historical maps (1966). Therefore, this area has low potential for post-contact archaeological resources. However, examination of original GLO maps indicates a tributary or distributary running east-west from Purgatory Creek in this location and these ponds may have been connected to it.

Examination of the original GLO maps and historical plat maps (Wright 1873, Dahl 1898, Westby 1913) prior to 1937 (where they appear on historical aerial photographs from that time period) did not find these ponds to be recorded. While this may mean that these ponds are man-made, it is also equally possible that they were not recorded due to the scale at which the original surveyors were mapping the landscape. Since mapping of landscape features is dependent on scale and, to some extent, the discretion of the surveyor, the absence of the ponds from these maps is not sufficient evidence to warrant a conclusion that they were not present historically.

A single pond in and of itself may not indicate high potential for archaeological resources, however, a collection of ponds in close proximity with associated wetlands increases the likelihood of finding archaeological resources. Moreover, a collection of ponds may have even more shoreline and biodiversity than a lake for precontact peoples to gather resources.

The historical aerial photographs from 1937 to 1960 indicate this area to be mostly farmland until 1967 when development began altering the landscape. Portions of the landscape surrounding the ponds appear to be undisturbed in historical aerials dating from 1937-1971. In addition, previous survey in the area "exhibited a natural undisturbed profile." (Harrison et al. 2012).

A portion of this area was previously recommended for archaeological survey in the Phase 1a study for the project (Area 3:b) as it contained "enough undisturbed upland terrains near wetlands to warrant exploratory testing" (Harrison and Madson 2010) (Attachment B: Figure 4a). Area 3:b was later removed from the Phase I survey as it was outside the APE (Harrison et al. 2012). Area 3:a was shovel tested with negative results. Because Area 3:b and Area 3:a were individually assigned an assessment of potential, the results of testing in Area 3:a should be considered exclusive to that area; the assessment of potential in Area 3:b remains unchanged. For the purposes of this assessment, Area 3:b is considered a contiguous portion of Area A.

There is no new information that would indicate a change in potential since the original approved MnDOT survey adjacent to this area. Although the results were negative, the area "exhibited a natural undisturbed profile" and has "enough undisturbed upland terrains near wetlands to warrant exploratory testing" (Harrison and Madson 2010, Harrison et al. 2012). Therefore, pedestrian survey is recommended with shovel testing in any undisturbed areas to locate any potential archaeological resources.

3.1.1.2 **Area B**

This area is located along the southern side of Technology Drive in between Mitchell Road to the west and Prairie Center Drive to the east near Purgatory Creek and the north side of a shallow lake created where Purgatory Creek begins draining south towards Staring Lake (Attachment B: Figure 4a). Examination of historical aerial photographs (1937-1971) indicates that this area was once farmland and that Purgatory Creek was straightened and turned into an irrigation ditch for the adjacent farm fields. No structures were identified within the APE on historical plat maps (Wright 1873, Dahl 1898, Westby 1913), Trygg historical maps (1966), or historical aerial photographs; therefore, this location has low potential for post-contact archaeological resources. The lake itself is not present in the aerial photographs indicating that it was likely created when the area ceased being used as farmland. However, examination of original GLO maps indicates that the alteration of Purgatory Creek followed the natural route of the creek and it is likely that intact precontact or contact period archaeological resources may exist in this location. Furthermore, the precontact site 21HE0289 is located to the southwest of this location, which indicates an increased potential for archaeological resources to exist. Shovel testing is recommended in this area to identify any intact archaeological resources.

3.1.1.3 **Area C**

This is a wooded area located along the southern shore of Lake Idlewild between Eden Road to the east and Prairie Center Drive to the west (Attachment B: Figure 4b). Historical aerial photographs (1937-1971) indicate that this location was a historically vacant wooded area with very little development other than a small building, which appears to have been constructed sometime between 1971 and 1992. No structures were identified on historical plat maps (Wright 1873, Dahl 1898, Westby 1913), Trygg historical maps (1966), or historical aerial photographs; therefore, this location has low potential for post-contact archaeological resources. However, there is minimal development in this area and, due to the close proximity to Lake Idlewild, this location has high potential for precontact and contact period archaeological resources and shovel testing is recommended. A review of historical aerials (1937-1971) indicates that the area surrounding Lake Idlewild to the west and southwest was either previously disturbed by road construction (western edge), or was likely filled in sometime after 1971 (southwestern edge); therefore, those areas are considered to have low potential for intact archaeological resources and are not included in the area of archaeological potential.

3.1.2 Eden Prairie Segment – Remainder of APE

The remaining portions of the SDEIS APE for the Eden Prairie Segment have either been reviewed during previous archaeological investigations for this project or are within existing roadways or have seen extensive commercial development dating between the early 1990s and 2000s. Therefore, these areas are considered to be disturbed and have low potential for archaeological resources. One area in the southern portion of the SDEIS APE of the Southwest Station between Prairie Center Drive to the east and an apartment complex to the west was identified by SWCA as having archaeological potential. This area (Area 3:g) was later surveyed by SWCA and found to be disturbed and no further work was recommended (Harrison et al. 2012; see Attachment B: Figure 2a).

3.2 Hopkins Operations and Maintenance Facility

No areas were identified to have archaeological potential within the SDEIS APE for the Hopkins OMF. Most of the APE for the Hopkins OMF consists of existing roadway and extensive commercial and industrial development dating between 1974 and 1999. Historical aerial photographs (1937-1971) indicate that this area was historically farmland with three farmsteads along 16th Ave S. and one along 15th Ave S. The recent development has since replaced these farmsteads and any archaeological resources, should they exist, would likely be disturbed. Two areas within the APE were previously surveyed by SWCA in 2012 (Attachment B: Figure 4c). Area 4:a was historically the site of the Red Wing Sewer Pipe Company manufacturing complex, but was not found to have archaeological integrity and no further work was recommended. Area 3:u was examined as it was a level upland overlooking a wetland; however, survey indicated that the eastern portion of this area was a landfill and no further work was recommended (Harrison et al. 2012). Portions of the SDEIS APE extend further northeast of Area 3:u; however, it appears to encompass more of the landfill and, therefore, this area is disturbed and has low potential for archaeological resources.

3.3 St. Louis Park/Minneapolis Segment

No additional areas were identified as having potential for archaeological resources within the SDEIS APE for the St. Louis Park/Minneapolis Segment. Thirteen areas with archaeological potential within the SDEIS APE (Areas 4:f, 4:g, 4:h, 4:i, 4:j, A:a, A:b, A:d, A:e, A:f, A:g, A:h and A:i) were identified in the Phase 1a archaeological assessment (Attachment B: Figures 4d-g). The Phase I survey identified five sites in these areas. Site 21HE0411 consists of one lithic biface fragment found at the base of a layer of redeposited historical debris and no further work was recommended. The other four sites – 21HE412, 21HE414, 21HE408, and 21HE409 - are currently under evaluation (Harrison et al. 2012).

Most of the SDEIS APE for the St. Louis Park/Minneapolis Segment has been previously reviewed during Phase 1a assessment and Phase I survey, and was not found to have archaeological potential beyond those areas outlined above (Harrison et al. 2012). However, eight areas outside the APE for this segment have not been previously reviewed. The archaeological potential for each of these areas was reviewed and none of the areas was found to have potential for intact subsurface archaeological resources. The results for each area are described below.

3.3.1 Louisiana Station

There are three portions of the SDEIS construction limits that extend beyond the original APE west and east of the Louisiana Station. These three portions consist of commercial development dating between the 1950s to the 1980s (Attachment B: Figure 4d). Any archaeological resources associated with these properties, should they exist, are unlikely to provide information that would contribute further significant information beyond what is already available in the written historical record or from study of the extant structures within the commercial development itself. Furthermore, given the extensive development in this area for over 100 years it is unlikely that any precontact archaeological resources remain intact and, therefore, this area has low potential for precontact archaeological resources.

3.3.2 37th Street W and Dakota Avenue S

There is a small area of the SDEIS APE for the corridor on the south side of the proposed alignment west of the Wooddale Station and near the intersection of 37th Street W and Dakota Avenue S. This area appears to have been previously disturbed by construction of the railroad along this alignment (Attachment B: Figure 4d).

3.3.3 CSAH 25 Near the Beltine Station

One portion of the SDEIS construction limits extends beyond the original APE of the Beltline Station along County State Aid Highway (CSAH) 25. This portion of the APE consists of existing roadway or commercial development that have low potential for archaeological resources (Attachment B: Figure 4e). In addition, the 1937 aerial photograph indicates that there was additional roadways located south of CSAH 25; the 1964 and 1969 aerials also indicate roads south of CSAH 25 and that the area was landscaped. Therefore, since these areas are likely disturbed, they are considered to have low potential for archaeological resources.

3.3.4 West Lake Station

Four portions of the SDEIS station APE and construction limits extend beyond the original APE of the West Lake Station. These portions follow existing roadway or have been previously disturbed by relatively recent commercial development and have low potential for archaeological resources as these areas are disturbed (Attachment B: Figure 4f).

3.3.5 North of the West Lake Station to Cedar Lake Parkway

There is a narrow strip of the SDEIS APE for the corridor on the east side of the alignment and a small portion of the construction limits at Cedar Lake Parkway north of West Lake Station. The narrow strip of the SDEIS corridor APE that that extends beyond the previously reviewed APE on the east side of the alignment north of West Lake Station measures approximately seven to nine meters wide and runs through existing residential development that SWCA did not identify as having any archaeological potential during the previous Phase 1a (Attachment B: Figure 4f). As this does not represent a significant shift from the area previously reviewed by SWCA, this strip also has low potential for archaeological resources. The portion of the construction limits that extends beyond the previously reviewed APE at Cedar Lake Parkway encompasses the existing roadway and, therefore, is considered to have low potential for archaeological resources.

3.3.6 South of Burnham Road

There is a section of the SDEIS construction limits that extends south of Area A:e (Phase 1a) into a partially wooded vacant space south of Burnham Road. Historical aerial photographs (1937-1962) revealed that this portion is a continuation of the rail yard associated with site 21HE0414 (Attachment B: Figure 4g). While this area should be considered a part of the site, the aerial photographs did not indicate any structures beyond rail lines and, therefore, this area is unlikely to provide any further information about the site. No further work is recommended for this area.

3.3.7 Between Franklin Avenue South and Penn Station

A portion of the SDEIS construction limits extends east of Area A:h (Phase 1a) between Franklin Avenue South and the Penn Station, including most of Area A:i (Phase 1a), and one small area that extends west of Area A:h. During the previous Phase I survey of Area A:h, site 21HE0408 was identified as a historic railroad complex composed of the Minneapolis & Saint Louis Railroad Car Shops and Roundhouse. The boundaries of the site encompass most of the level area closest to the base of the bluff from approximately Franklin Avenue South on the south to approximately I-394 on the north, encompassing most of previously identified potential Area A:i (Phase 1a) (Attachment B: Figure 4g) (Harrison et al. 2012). This site is currently being evaluated. The remainder of the SDEIS APE east of this site consists primarily of a "steep, artificial grade to the Kenwood neighborhood on top of the bluff" (Harrison et al. 2012:47). Due to the steep grade of this slope, it is likely that, if any archaeological resources existed, they have eroded off the slope to the base of the bluff. Therefore, this area is considered to have low potential for intact archaeological resources. In addition, Sanborn maps from 1912-1930 and historical aerial photographs from 1938, 1953, 1964 confirm that this area was historically sloped with no structures.

There is also a small portion of the SDEIS APE that extends west of Area A:h (Phase 1a). Historical aerial photographs (1947-1966) revealed that the portion of the SDEIS APE west of Area A:h is a continuation of the rail yard associated with site 21HE0408, the M&StLRR Cedar Lake Shops, a historic railroad complex (Attachment B: Figure 4g). Aerial photographs did not indicate any structures beyond rail lines in this area and, therefore, this area is unlikely to provide any further information to contribute to the site. Therefore, no further work is recommended for this area. The remainder of Area A:i (Phase 1a) is not encompassed by the boundary of site 21HE0408 or the steep slope of the bluff consists of portions of the backyards of houses along Kenwood Parkway, all dating to the late 1900s to early 2000s (Attachment B: Figure 4g). Since these structures are less than 50 year of age, it is unlikely that any significant intact archaeological resources would exist in this area.

3.3.8 Penn Station

Three portions of the SDEIS station APE and construction limits extend beyond the original APE of the Penn Station. These portions of the APE primarily encompass existing roadways and portions of the backyards of houses along Kenwood Parkway dating to the late 1900s/early 2000s. Therefore, both areas are considered to have low potential for archaeological resources, as previously described (Attachment B: Figure 4g).

Finally, since the proposed adjustments to the LPA in the St. Louis Park/Minneapolis Segment include construction of tunnels, the 106 Group consulted Anderson Geological Services to determine if there is the potential for deeply buried soils and archaeological material in this location. Anderson conducted a desktop review of Google Earth satellite images to assess the potential for buried native soils (paleosols). Prior to Euro American settlement, areas adjacent to most lakes and rivers in the Twin Cities area were wetlands. He concluded that the area between the Cedar Lake and Lake of the Isles was likely wetland historically based on the close proximity of the two lakes. In addition, past investigations conducted by Anderson in the Twin Cities area have shown considerable wetland filling along water bodies.

Anderson also conducted a review of the 1929 and 2004 Hennepin County Soil Surveys for a more conclusive understanding of the potential for buried paleosols to exist within the project area. According to Anderson, a railroad exists along the corridor in the 1929 soil survey, which has likely disturbed much of the soils (McMiller et al. 1929). In addition, the recent 2004 survey has mapped the following soil series along the corridor: L52C, L52E, L55B, U1A and U2A. The L52 series is the Urban Land/Lester complex, "most areas have been disturbed to some degree by construction activity" (Steffen 2004). The L55 series is the Urban Land/Malardi complex, "most areas have been disturbed to some degree by construction activity" (Steffen 2004). The U1A series is Urban Land originally wet, and U2A is Urban land, filled depressions and originally wet, these "Udorthents consist of fill material that have been placed in wet depressional areas" (Steffen 2004).

Given these pieces of evidence, Anderson concluded that the APE in this location follows a corridor that has likely been disturbed historically, particularly by wetland filling. If buried paleosols with a potential for containing buried cultural materials exist within the project corridor their distribution would be extremely limited. Based on a review of Google Earth satellite images and soil surveys within the project corridor, Anderson indicated that the potential for undisturbed buried cultural materials within the project corridor is low.

4 Summary

This document provides an overview of the archaeological potential within the proposed adjustments to the LPA for the Southwest LRT Project, which are included in a SDEIS for the project. Any additions or expansions to the project should be subject to similar investigations.

Background information, such as historical and modern maps, historical and modern aerial photographs, and previously identified archaeological sites, were collected to characterize the archaeological potential for the SDEIS areas.

Three areas with potential to contain precontact and contact period archaeological resources were identified within the SDEIS APE, all within the Eden Prairie Segment (Attachment B: Figures 4a-b). The 106 Group recommends additional investigations, including pedestrian survey and shovel testing, for the areas of archaeological potential identified. The SDEIS APE also includes four archaeological sites currently undergoing a Phase II evaluation (see Table 2 and Attachment B: Figure 4g).

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Attachment A
Research Design

Southwest Transitway:
A Research Design for Cultural Resources
12 February 2010, updated 16 March 2010, 2 April 2010

Prepared by
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INTRODUCTION

The Hennepin County Regional Rail Authority is proposing to construct the Southwest Light Rail Transit (SWLRT) facility, linking the Intermodal Station in downtown Minneapolis with the central business area in suburban Eden Prairie. The line is located within the cities of Minneapolis, St. Louis Park, Hopkins, Minnetonka, and Eden Prairie.

The Federal Transit Administration (FTA) has determined that the proposed project is an undertaking as defined by the National Historic Preservation Act (NHPA) and is subject to the provisions of Section 106 of the NHPA. Section 106 requires that federal agencies take historic properties into account as part of project planning. The Cultural Resources Unit (CRU) of the Minnesota Department of Transportation (MnDOT) is acting on behalf of FTA for many aspects of the Section 106 review process for SWLRT. The FTA has also determined that the SWLRT is subject to the National Environmental Policy Act (NEPA) and a Draft Environmental Impact Statement (DEIS) is being prepared by Hennepin County under the direction of the FTA.

Through the NEPA scoping process, four build alternatives were identified. To streamline subsequent analysis, these alternatives were divided into five segments. The following table, which was included in the draft "Southwest LRT Technical Memorandum No. 9: Environmental Evaluation" (September 9, 2009), outlines the segments that are associated with each of the alternatives:

Alternative	*Segments*
LRT 1A	1, 4, A
LRT 3A	3, 4, A
LRT 3C-1 (Nicollet Mall)	3, 4, C-1 (Nicollet Mall)
LRT 3C-2 (11th/12th Street)	3,4, C-2 (11th-12th Streets), C-2A (Blaisdell Avenue), C-2B (1st Avenue)

Segment 1 extends northeast from a station in Eden Prairie at TH 5 along a former rail corridor owned by the Hennepin County Railroad Authority (HCRRA) to a station at Shady Oak Road, on the border between Minnetonka and Hopkins.

Segment 3 creates a new corridor, running east from a station at Mitchell Road in Eden Prairie and turning northerly to terminate at the Shady Oak Station.

Segment 4 follows an existing rail corridor east-northeasterly from the Shady Oak Station through Hopkins and Saint Louis Park to the West Lake Station in Minneapolis, near that city's western border.

Segment A continues northeast from the West Lake Station, mostly using an existing rail corridor, to the Intermodal Station on the western edge of downtown Minneapolis.

Segment C also begins at the West Lake Station, traveling east along a former rail corridor (now the Midtown Greenway), north along one of several alternative courses under and on city streets, to and through downtown Minneapolis, and ultimately ending at the Intermodal Station or South Fourth Street. (For the purpose of this cultural resources assessment, all of the "C" variations will be considered as a single group.)

It should be noted that the above segments overlap at three points: the Shady Oak Station, the West Lake Station, and the Royalston/Intermodal Stations. When the results of the cultural resource surveys are sorted by segment, there will be redundancy in the findings at these three points. This redundancy is inevitable if the effects of each segment are to be analyzed. When a single alternative is selected, it will be necessary to eliminate duplicated properties to obtain an accurate representation of the effects of that alternative.

PROPOSED METHODOLOGY FOR ARCHAEOLOGICAL RESOURCES SURVEY

Christina Harrison, Archaeological Research Services
Mike Justin and Mike Madsen, HDR Engineering

This work plan outlines a program to identify archaeological properties which meet the criteria of the National Register of Historic Places in the project's area of potential effect (APE), to be used in assessing potential effects to those properties. Three primary tasks comprise the work plan. First, in order to provide a uniform assessment of available data across the five project segments discussed in the DEIS, the project team will prepare a report (by project segment within a broad APE) to include: results of the literature search, an archaeological probability assessment, and a field survey strategy (Task 1). It is expected that a limited amount of field investigation/sampling may occur as part of this task depending upon the weather. Second, an archaeological inventory/evaluation of the selected alternative will be completed, using a refined APE based on proposed construction (Task 2). Finally, a report of the field investigations of the selected alternative and an assessment of effects will be prepared (Task 3).

Task 1 will involve archaeologists from both HDR and ARS. Support will be provided, as needed, by Hess Roise research staff as well as by geomorphologists and other paleoenvironmental experts provided by HDR. Division of responsibilities will partly depend on what survey needs are identified by the background research, but primary responsibility for precontact and contact period archaeology will rest with Christina Harrison (ARS) and Michael Justin (HDR), and for historic archaeology with Michael Madson (HDR). The personnel for Tasks 2 and 3 are pending.

The survey will be conducted in accordance with all federal, state, and local requirements, including the Minnesota Field Archaeology Act and the Minnesota Private Cemeteries Act.

Area of Potential Effect (APE)

The APE for archaeological resources is generally defined as the anticipated limits of construction activities. At this stage in the project development, factors influencing those limits have not yet been fully identified. The APE, starting with a broad area at first, will be refined as the engineering design advances.

For Task 1, the APE for the literature search and probability assessment will be based, as appropriate, on the project limits as defined in the project engineering drawings used to prepare the DEIS. This will include the full width of existing railroad right-of-way corridors as well as the area within 100 feet on either side of the current engineering alignments. The APE near station areas also includes any undeveloped and/or vacant property within 500 feet that could potentially be utilized for construction/development activities. Depending on the station location, these may include open, green spaces (particularly in suburban areas) and paved parking lots (particularly in urban areas).

If the literature search/probability assessment identifies potentially significant historic features or high probability areas immediately adjacent to the above-referenced APE parameters, and if the significance of potential sites in these areas is expected to relate to National Register criteria A, B, and/or C, the APE for the field strategy for the Phase I-II survey may be adjusted to include these locations.

During Task 2, the APE will be reviewed in light of more detailed engineering plans. Throughout the design phase of the project, the adequacy of the APE will be periodically evaluated and expanded or retracted as necessary as project elements are added or modified. The survey report specified in Task 3 will provide a clear delineation of the surveyed APE, including all additions, so that the adequacy of survey efforts can be readily determined when project changes are proposed.

It should be noted that, generally, the APE for archaeological resources is a smaller area located within the APE for history/architecture resources.

Task 1. Report of Archival Review/Site Probability/Field Strategy

This task will uniformly represent the readily available information across the five project segments discussed in the DEIS. In general the report will be a desktop analysis of existing archaeological research data supplemented by a discussion of probability for previously unidentified archaeological properties. Field inspections may be utilized to confirm existing conditions, particularly to inform the discussion on field survey strategies.

The desktop analysis will utilize documents on file at the State Historic Preservation Office (SHPO) and the Office of the State Archaeologist (OSA). Historic maps and aerial photographs, local histories, and other archival information on file at the Minnesota Historical Society, the Borchert Map Library (at the University of Minnesota), and local libraries and historical societies may also be reviewed.

The task will review:

- archaeological survey reports on file at SHPO, OSA and other repositories in order to establish what segments of the project routes have already been inventoried according to current standards;
- known archaeological sites and/or (if applicable) recommendations/confirmations of NRHP eligibility;
- relevant USGS topographic maps and soil surveys as well as any Mn/Model information and other environmental and paleoenvironmental data pertinent to the assessment of pre-contact archaeological site probability, including land use histories;
- Historic maps and aerial photographs to identify localities with historic-period archaeological site potential.

A preliminary field review will be conducted. The survey team will document visible indications of topographic and hydrological features as well as past and current land use with concomitant loss of soil integrity. The information from field observations will be combined with the data gathered during the archival review to propose archaeological site probability along the five segments.

Pre-contact and historic-period contexts will be briefly reviewed, with a focus to inform the discussion of site types and assessment of probability. The probability assessment will be organized by the five project segments (1, 3, 4, A, and C). For each of the five segments the report will include:

- a general description of the APE;
- a discussion of previous surveys and previously identified sites;
- a discussion of historic site types and the associated conditions that may indicate a historic property;
- a discussion of archaeological probability (for pre-contact/contact period and historic-period), and;
- a survey strategy and methods, including specific places targeted for field investigation.

The survey strategy for precontact and contact period evidence will be guided by Native American and early Euro-American settlement and land use patterns identified by previous archaeological investigations in the vicinity including, for example, the 1992-1994 city-wide cultural resource survey of Eden Prairie, the corridor surveys conducted for Trunk Highway 212 and Trunk Highway 12, and a number of smaller scale compliance surveys conducted within the Nine Mile, Minnehaha and Purgatory Creek watersheds.

The results of Task 1 will be summarized in the DEIS.

Task 2. Inventory/Evaluation (Phase I-II) Survey

For the Inventory/Evaluation survey, the APE will be refined to reflect the updated engineering design. That refined APE will be surveyed in a manner consistent with the recommendations presented in the Task 1 report. Field methods outlined in the Minnesota SHPO and MnDOT CRU guidelines will be generally followed; any exception, as well as more detail specific to the existing conditions along each segment, will have been documented in the Task 1 report.

In the case of precontact/contact period Native American evidence, the field sampling will involve standard methods for identification and the preliminary assessment of horizontal and vertical site dimensions, integrity, and National Register potential. In addition, the survey may utilize targeted geomorphological testing and analysis in areas likely to feature deeply buried archaeological evidence.

Artifacts will be collected and analyzed in a manner consistent with contemporary standards. Artifacts from private property will be collected with written permission of the landowner. Historic period artifacts will only be collected if they appear to represent a potentially significant archaeological property.

Archaeological sites determined to have National Register potential will then require more comprehensive Phase II formal testing. As the Phase I review more than likely will have identified a wide range of site types associated with highly varied environmental settings and precontact to historic period contexts, the scope, research questions, field and analytic needs will be more appropriately defined at that stage of the investigation.

Task 3. Analysis and Reporting

A technical report of the Phase I and Phase II investigations, including the methodology, field work results, and recommendations, will be prepared in accordance with the guidelines of MnDOT's CRU, the Secretary of the Interior's Standards for Identification and Evaluation, and other applicable state and federal guidelines. This includes submittal of Geographic Information Systems (GIS) data per the CRU guidelines. All sites documented during the survey will be recorded on new or updated Minnesota Archaeological Site Forms.

Collected artifacts will be processed and analyzed in compliance with the survey guidelines of the SHPO and the Mn/DOT CRU. Artifacts will be curated at an approved facility as stipulated in the consultant's archaeology license.

PROPOSED METHODOLOGY FOR HISTORY/ARCHITECURE RESOURCES SURVEY

Charlene Roise, Hess, Roise and Company

Area of Potential Effect (APE)

Generally, the APE for history/architecture resources extends 300 feet on either side of the centerline of the alignment of each corridor. Around each station, the APE includes property within a quarter-mile radius. This area addresses anticipated project-related infrastructure work and reasonably foreseeable development.

The APE is illustrated in maps of the five project segments. Exceptions to the parameters outlined above include the following:

- The APE for the Intermodal Station (in segments A and C) includes all property within the boundaries adopted for the "Downtown Minneapolis Transit Hub" Environmental Screening Report (October 28, 2009 review draft) prepared for Hennepin County by Kimley-Horn and Associates. The area shown in the report is extended northeast of Washington Avenue to and across the Mississippi River to include the first tier of properties on Nicollet Island, to provide adequate APE coverage for the three-block potential station area and related developments such as rail storage yards. This area addresses infrastructure work associated with the SWLRT project as well as cumulative effects related to the development of the Intermodal station. (See below for discussion about splitting responsibility for survey of this area between the SWLRT project and the Intermodal Station project.)

- The APE for the 4th Street, 8th Street, 12th Street, Harmon Place, Hawthorne Avenue, Lyndale, and Uptown Stations (in segment C) includes the adjacent blocks in all directions from the station. This area is proposed for the stations in the more densely-built urban area, in comparison to the larger quarter-mile radius for other stations in outlying areas.

- The APE for the proposed tunnel area under Blaisdell, Nicollet, or First Avenues, including the 28th Street and Franklin Stations (in segment C), extends from one-half block west of Blaisdell Avenue to one-half block east of First Avenue. If this alternative is selected, the APE may need to be expanded in light of the design and construction methods for the tunnel.

- Along some portions of the corridor, the 300 foot APE may be extended to take into account visual effects. For example, if the 300 foot area comprises open space, and a row of buildings is located beyond, these buildings may be included in the APE.

- In some station areas, there are known areas of project related work and/or anticipated development outside of the quarter-mile radius, and these areas are included in the APE. This includes areas in downtown Hopkins.

The APE may also be adjusted if a field surveyor recommends that the project may affect a property or properties not included in the established APE boundaries.

As project planning proceeds, additional factors will be assessed to determine if there are other effects (direct, visual, auditory, atmospheric, and/or changes in use) which could require an expansion of the above APE. These factors include:

- Noise analysis, including areas where the use of bells and whistles is anticipated.
- Vibration analysis, including vibration related to project construction and operations.
- The specific locations of project elements, including operations/maintenance facilities, park-and-ride facilities, traction power substations, signal bungalows, and other infrastructure.

Survey Approach

Survey Zones

The project cuts through a number of distinct communities, each with a unique history. As a result, these communities, which share similar physical and historical characteristics, can serve as a framework for conducting the survey. The survey will be organized around the following zones (related project segments and stations are listed in parenthesis):

- Eden Prairie (Segments 1 and 3; Highway 5, Highway 62, Mitchell Road, Southwest Station, Eden Prairie Town Center, Golden Triangle, City West Stations)
- Minnetonka (Segments 1 and 3; Rowland, Opus, Shady Oak Stations)
- Hopkins (Segment 4; Shady Oak, Hopkins, Blake Stations)
- Saint Louis Park (Segment 4; Louisiana, Wooddale, Beltline Stations)
- Minneapolis west residential, including parts of Bryn Mawr, Lowry Hill, East Isles, Kenwood, Cedar-Isles-Dean, and West Calhoun neighborhoods (Segments A and C; West Lake, 21st Street, Penn Stations)
- Minneapolis south residential/commercial, including parts of the Stevens Square/Loring Heights, Whittier, Lowry Hill East, East Isles, and Cedar-Isles-Dean neighborhoods and the Midtown Greenway (Segment C; Uptown, Lyndale, 28th Street, Franklin Stations)
- Minneapolis downtown north of I-94 (Segment C; 12th Street, 8th Street, 4th Street, Harmon Place, Hawthorne Avenue Stations)
- Minneapolis industrial (Segments A and C; Van White, Royalston Stations)
- Minneapolis warehouse (Segments A and C; Intermodal Station)

In addition, there are four railroad corridors that traverse these community boundaries. These corridors will be considered as four individual zones. The corridors (by historic names) are:

- Minneapolis and Saint Louis Railway (Chicago and North Western Railway). Part of the main line is in the APE (Segments 1, 4, A and C). A segment of this line between downtown Minneapolis and Merriam Junction has recently been evaluated by the Surface Transportation Board as not eligible to the National Register; however, the SHPO did not concur with this finding. The line will be further evaluated, focusing on the section within the APE.
- Chicago, Milwaukee and Saint Paul Railway (Milwaukee Road), Benton Cutoff. Part of the CM&SP Benton Cutoff is in the APE (Segments 4, A, and C). Except for the Chicago, Milwaukee and Saint Paul Railroad Grade Separation Historic District, which is listed in the National Register, the Benton Cutoff has previously been determined as not eligible to the National Register by the Federal Highway Administration, with concurrence by the SHPO.
- Saint Paul and Pacific Railway (Great Northern Railway). Part of the main line is in the APE (Segment A). This line will be evaluated.
- Minneapolis, Northfield and Southern Railway. Part of the Auto Club-Luce Line Extension of the MN&S is in the APE (Segment 4). This line has been previously evaluated by Mn/DOT CRU, and the Auto Club-Luce Line Extension has been recommended as not eligible to the National Register. This determination has not been submitted to SHPO for concurrence. The Mn/DOT CRU evaluation will be summarized and incorporated into this survey by reference.

All of the above lines, including those which have been evaluated as not eligible, will be inventoried and evaluated to identify any railroad related features in the APE that are potentially significant in their own right. The statewide railroad context developed by Mn/DOT CRU will serve as a basis for evaluation of railroad resources.

The survey of the above thirteen zones will be completed by three consultants. Hess Roise will complete the surveys for the five zones in Minneapolis, Mead & Hunt will complete the surveys for St. Louis Park, Hopkins, Minnetonka, and Eden Prairie, and Summit Envirosolutions will complete the surveys for the four railroad zones. Each consultant will prepare a report for the Phase I-II survey of the zones completed. An overall summary, integrating the survey results from all thirteen zones, will be prepared for the analysis of effects, within the framework of the five project segments.

The survey will include properties built in 1965 and earlier. Although National Register guidelines use a 50-year cut-off for eligibility (except for properties of exceptional importance), adopting a 45-year cut-off for this survey provides 5 years for project planning before the survey becomes outdated.

NOTE ON RESPONSBILITY FOR SURVEYS IN THE INTERMODAL STATION AREA: There is an overlap of the APEs for the SWLRT project and the Intermodal Station project (currently in the planning stage). The SWLRT survey effort will complete survey work for only

a portion of the SWLRT APE in the vicinity of the Intermodal Station, including where SWLRT construction is anticipated. The remainder of this area will be surveyed as part of the planning for the Intermodal Station project. The survey results from the Intermodal Station survey will be included in the consideration of cumulative effects as part of the SWLRT Section 106 review. (See map for the division of survey responsibilities in this portion of the SWLRT APE.)

Phase I Survey (Reconnaissance Survey)

The primary goal of Phase I is to identify properties that appear to have the potential to qualify for the National Register and merit further analysis. This will eliminate from further consideration any properties that have little or no potential to meet National Register criteria. The Phase I survey will also verify that properties already listed or officially determined eligible for listing in the National Register still retain integrity.

Literature Search

The literature search will focus on areas within the APE, with broader contextual information procured as needed. The literature search will begin by collecting existing reports and research for each zone. Maps, atlases, and other information that can provide specific information about property within the APE for archaeology will be a high priority. Additional research will be conducted for specific areas, and occasionally on specific properties, as appropriate. The literature search will produce:

- A working set of research files, including maps and related materials, for each zone. A copy of these files will be provided to the archaeological team.
- For each zone, a brief context (perhaps with subcontexts) will be developed that is approximately two to five pages in length and comprises a brief narrative, an annotated list of relevant property types, and a preliminary period of significance. (This assumes that extensive narrative contexts will not be developed during this phase.) A similar context will also be prepared for each railway, focusing specifically on segments in the APE. These contexts will also be provided to the archaeological team.

Fieldwork

A project-specific inventory form will be developed. Prior to the onset of fieldwork, a draft inventory form will be submitted to the client for review and approval.

The Hennepin County property database provides building construction dates for tax parcels. These dates will be assumed to be generally reliable for properties erected in the last half of the twentieth century, and will therefore be used to eliminate properties built after 1965 from the survey. During fieldwork, however, surveyors will be observant of properties eliminated from the inventory to identify:

- Inaccuracies: Properties not included in the survey that appear to date from 1965 and earlier (in other words, instances where the county date appears to be incorrect);
- Incomplete data: Properties not included in the survey that contain multiple buildings or other features, where the county date may refer to a newer feature—but older features are also present;
- Exceptional properties: Properties dating from 1966 or later that might be of exceptional importance.

Fieldwork will be conducted by zones. The methodology for each zone is as follows:

- Using information from the Hennepin County database, surveyors will be provided with a spreadsheet listing all properties in the zone built in 1965 or earlier. In addition to the address and year built, the spreadsheet will include the property's use and the name of the owner and taxpayer. The survey will include properties listed or officially determined eligible for listing in the National Register (including those in historic districts) to verify that they retain integrity. Map books will be prepared for reference in the field.
- Surveyors will conduct site visits for each property, recording observations from public rights-of-way with field notes and digital photographs. At a minimum, surveyors will record information on noteworthy features and the property's integrity. Using the data categories for functions and uses outlined in the National Register bulletin *How to Complete the National Register Registration Form*, and with reference to the context information for each zone, the surveyor will suggest data categories that seem the most appropriate for evaluating the property's National Register potential. The surveyor will also provide a preliminary recommendation—and a justification for that recommendation—stating that 1) the property does not appear to be eligible for the National Register, or 2) the property should be evaluated in Phase II.
- All field surveyors will meet the Secretary of the Interior's Professional Qualifications Standards.

Deliverables for Phase I survey

- For each zone:
    - Synopsis for each zone, including the context and property type information.
    - Table of surveyed properties including recommendations for intensive level survey, with justification.
    - Inventory form (2 copies) for each property in the APE built in 1965 or earlier. In addition to the data collected in the field, the inventory forms will incorporate information on the property's location (UTM reference, township/range/section) from the county database. At least one color digital photograph of the property will be included on each form. (NOTE: For properties which go to a Phase II evaluation, the same survey form should incorporate the evaluation information.)
    - Map of zone with properties recommended for intensive-level survey identified.

Phase II Survey (Intensive)

The goal of Phase II is to evaluate properties, as recommended in Phase I, to determine which meet the criteria of the National Register of Historic Places. As with Phase I, the work will be organized by zones.

Literature Search

The literature search will focus on individual properties and districts that have potential to meet National Register criteria. To provide a framework for evaluating some properties, it may be necessary to expand the context synopses developed in Phase I to address specific physical areas, eras, and/or property types.

Fieldwork

Additional field work may be needed to evaluate the physical characteristics of individual properties and districts. It might be necessary to obtain permission to enter some properties for this evaluation—if, for example, there is the potential for a significant interior space, or if a parcel is large and contains a number of buildings and these buildings cannot be adequately evaluated from the public right-of-way, aerial photographs, or other means.

Deliverables for Phase II survey

- For each zone:
    - Table of Phase II properties, including recommendations on eligibility.
    - More detailed inventory form, including the narrative evaluation of eligibility, for each property included in this phase.
    - Map of zone, showing properties that appear to qualify for the National Register identified, along with listed and previously determined eligible properties.
- A Phase I-II survey report (for all zones completed by the same consultant) conforming to Mn/DOT CRU Architecture/History Report requirements and other applicable federal and state guidelines.

At the conclusion of all Phase II history/architecture survey work, a consolidated summary/table incorporating the work from all thirteen zones will be prepared for the analysis of effect. This summary will be organized by the five project segments.

Attachment B
Figures

Due to the sensitive nature of the information they contain these maps will not be provided except by request to the Metropolitan Council

Attachment C
Project Personnel

106 GROUP LIST OF PERSONNEL

Principal-In-Charge	Anne Ketz, M.A., RPA
Project Manager	Jennifer Bring, B.A.
Principal Investigator, Archaeology	Anne Ketz, M.A., RPA
Researchers	Peer Halvorsen, B.A.
Graphics and GIS	Nathan Moe, B.A. Matt Schillerberg