

MUNICIPALITY OF SKAGWAY

MAIN STREET

CONDITION ASSESSMENT REPORT



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RESPEC.COM



EXECUTIVE SUMMARY

The town of Skagway is located in Southeast Alaska is home to 800-1000 full time residents that heavily rely on the cruise ship industry. The Municipality of Skagway (MOS) retained RESPEC to perform a condition assessment of Main Street, a 1.26-mile MOS owned and maintained residential collector street. Main Street is a residential street in Skagway that sees traffic in the form of residential, pedestrian, commercial, educational and cruise ship traffic. RESPEC's assessment included a corridor inventory, visual inspection of the roadway pavement surface, sidewalk review of safe routes to school, accessibility review, storm water review, underground utility inspection, overhead utility inspection, and roadway illumination review. A conceptual corridor typical section and a preliminary cost estimate of the recommended improvements were also prepared as part of this assessment.

After the assessment, it was determined that Main Street's roadway, sidewalks, water system, storm sewer and sanitary sewer systems are in need of repair. RESPEC recommends that the MOS start the planning and budget process to reconstruct Main Street. This will include roadway, sidewalks, water system, storm sewer system, and sanitary sewer manhole reconstruction from 1st Avenue to 23rd Avenue. The preliminary construction cost estimate with construction contingencies and project soft costs is estimated at \$38,003,330.00.



Figure 1. Main Street looking north from 4th Avenue

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1.0 INTRODUCTION

This report provides the findings of a road corridor assessment performed on the Municipality of Skagway (MOS) Main Street roadway in Skagway, Alaska. The condition assessment inspected the existing conditions of the asphalt-surfaced roadway, sidewalks, accessibility, underground utilities and overhead utilities along Main Street from 1st Avenue to 23rd Avenue.

The purpose of this assessment was to note observable deficiencies and areas of potential improvement, including the traveled roadway, above ground utilities, pedestrian and motorist safety, sanitary sewer system, storm sewer system and the drinking water system. Deficiencies noted include, but are not limited to failed roadway base, pavement failures, inadequate pedestrian walkways, and aging underground utility systems.

The condition assessment identifies and assesses the functional and physical characteristics of the MOS roadway corridor through a visual inspection. This is done to develop a surface condition rating as well as take stock of other roadway components that directly affect the condition and life cycle of the road pavement surface, sidewalks, above ground and underground utilities.

A surface condition review does not provide definitive road structural strength assessment as can be provided through load deflection testing, or drill bore hole sampling. However, surface condition does provide an indication of underlying road subbase problems.

The visual inspection of underground storm sewer and sanitary sewer systems involves the interior inspection of underground structures and where possible, pipes. The visual inspection of these systems provides an accurate assessment of the current condition of the system components. The drinking water system assessment, however, is based on historical data and information provided from the MOS operations and maintenance staff.

The condition assessment information is suitable for informing the MOS Public Works Department of road reconstruction and utility improvement needs, priorities, and options which can then be identified. This information then can be shared with the MOS staff and assembly, and affordable levels of service and risk can be determined. More detailed geotechnical and road structure investigations may be warranted in some cases to help determine if alternative road and sidewalk rehabilitation methods would be appropriate such as full depth reconstruction of the roadway embankment.

2.0 BACKGROUND

The Municipality of Skagway is located adjacent the marine waters of Lynn Canal, at the head of Taiya Inlet. The community is located approximately 12 miles from the Canadian border in Southeast Alaska. Skagway is home to a year-round population of around 800-1000 residents. In the summer months, Skagway receives half million to 1.5 million tourists via cruise ship. Skagway is one of only two communities in Southeast Alaska that is connected to a roadway, the other being Haines, Alaska. Given the access to a mainland road system, Skagway is also an important shipping port. Year round commercial trucks hauling fuel and ore minerals travel through the town.





Main Street is a two-lane, paved residential street that runs parallel to State Street, which is designated as the heavy haul truck route for fuel, ore, tourist and commercial vehicles traveling through Skagway. Main Street, in isolated instances, will have commercial traffic.

Main Street's current asphalt pavement and concrete sidewalks are approximately 40 years old and do not utilize the full 60' right of way (ROW). There are many aspects of the existing pavement and sidewalks that generate a concern for pedestrian and motorist safety as well as increased MOS maintenance efforts, which increase costs.

3.0 METHODOLOGY

The field assessment was conducted on August 23rd-24th, 2022 and included visual inspection of 1.25 miles of Main Street. Each aspect of the assessment was evaluated block by block to prepare a detailed condition assessment. The road included in this assessment, Main Street, is shown in red on Figure 2.

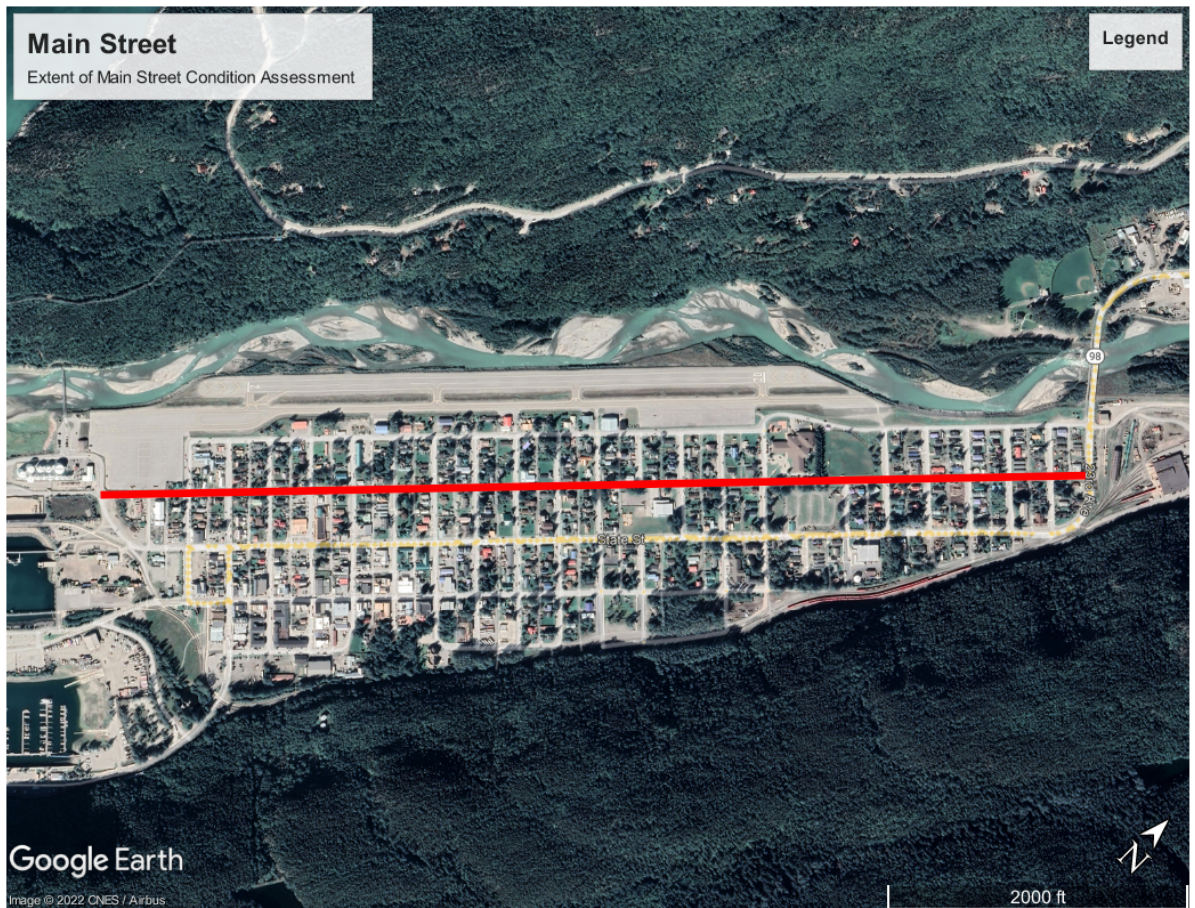


Figure 2. Extent of 2022 Main Street Condition Assessment



3.1 ASPHALT

In order to perform a condition assessment on the existing asphalt pavement, a Pavement Condition Index (PCI) was developed for each block of the street. ASTM Standard D6433, Standard Practice for Roads and Parking Lots Pavement Condition Index Surveys was followed. A formula is used to calculate a pavement condition rating for each road segment. The rating score is based out of 100 points, with higher scores indicating better pavement conditions.

For the purpose of this report, the PCI rating will be used to identify recommended road maintenance and rehabilitation actions to be taken. Trigger conditions vary between road classifications and which roads are considered higher priority. Table 4-1 shows the PCI summary established for the report. Values in Table 3.1 can be adjusted based on the Municipality's priorities.

Table 3-1: Pavement Condition Index (PCI), Rating Scale

100	Good
85	Satisfactory
70	Fair
55	Poor
40	Very Poor
25	Serious
10	Failed

3.2 CURB AND SIDEWALKS

To perform a condition assessment of the existing sidewalks and curbs, the existing curbs and sidewalks were evaluated based on current American Disability Act (ADA) standards. In addition, a "SMART" level was used in the field to check sidewalk ramp cross slopes and landing grades. The areas evaluated are summarized as either being in conformance or not.

3.3 STORM SEWER AND SANITARY SEWER SYSTEMS

To gather as much information as possible for both the gravity storm sewer system and the gravity sanitary sewer system, all of the existing sanitary sewer and storm structures along Main Street were visually inspected. The MOS Public Works Department will provide a CCTV inspection of the sanitary sewer mainline pipe to assist in the condition assessment at a later date.

3.4 DRINKING WATER SYSTEM

Evaluation of the existing drinking water system along Main Street was performed by reviewing the existing project as-built records of the street to determine the age of existing water system. Interviews with MOS Public Works staff to learn of leaks, repairs and maintenance issues was done to further aid in the assessment. It was determined that there are no leaks to date but multiple service line repairs and replacements have taken place.



3.5 CORRIDOR INVENTORY

The Main Street corridor inventory involved field measuring the physical dimensions of the existing roadway including the paved road surface, on-street parking areas, bike lanes, shoulders, curbs, sidewalks, utility poles, and roadway signage and striping.

3.6 SAFE ROUTES TO SCHOOL

The existing safe routes to school along Main Street was reviewed along with school zone signage and striping as the Skagway Public School is located on Main Street between 15th Avenue and 18th Avenue and the Community Rec center is located on Main Street at 14th Avenue.

3.7 UTILITY POLES AND ABOVE GROUND UTILITES

RESPEC reviewed existing wooden utility pole locations and overhead utility line locations for possible moving, relocation or going underground to allow increased clearance for vehicles traveling on Main Stret. This involved discussions with Alaska Power and Telephone (AP&T) on feasibility and costs.

4.0 ASSESSMENT

4.1 ASPHALT

Main street is comprised of approximately 1.25 miles of asphalt road with an approximate asphalt surface area of 5.6 acres. The asphalt pavement width varies from 34' to 36'. The depth of asphalt pavement is reported as 2.5" – 3.5". A summary of the condition assessment is below in Table 4-1. Most of the asphalt located on Main Street falls into the Poor and lesser conditions. The asphalt was observed to have many instances of longitudinal and transverse cracking, distortion, rutting, weathering/ raveling, and alligator cracking.

Segment	Pavement Condition Score (PCI)	Pavement Condition Description	Pavement Failures Observed	Roadway Length (ft)
State St. to 1 st Ave	82	Satisfactory	Long & Trans Cracking, Patching, Weathering/ Raveling	540
1 st Ave to 2 nd Ave	47	Poor	Alligator Cracking, Long & Trans Cracking, Patching, Potholes, Rutting, Weathering/ Raveling	280
2 nd Ave to 3 rd Ave	60	Fair	Alligator Cracking, Depression, Long & Trans Cracking, Patching, Rutting, Weathering/ Raveling	280
3 rd Ave to 4 th Ave	60	Fair	Alligator Cracking, Long & Trans Cracking, Patching, Rutting, Weathering/ Raveling	280
4 th Ave to 5 th Ave	38	Very Poor	Alligator Cracking, Long & Trans Cracking, Patching, Potholes, Rutting, Weathering/ Raveling	280



5 th Ave to 6 th Ave	44	Poor	Alligator Cracking, Depression, Long & Trans Cracking, Patching, Rutting, Weathering/ Raveling	280	
6 th Ave to 7 th Ave	58	Fair	Alligator Cracking, Long & Trans Cracking, Patching, Rutting, Weathering/ Raveling	280	
7 th Ave to 8 th Ave	54	Poor	Alligator Cracking, Depression, Long & Trans Cracking, Patching, Rutting, Weathering/ Raveling	280	
8 th Ave to 9 th Ave	32	Very Poor	Alligator Cracking, Depression, Long & Trans Cracking, Patching, Rutting, Weathering/ Raveling	280	
9 th Ave to 10 th Ave	16	Serious	Alligator Cracking, Bumps and Sags, Long & Trans Cracking, Patching, Rutting, Shoving, Weathering/ Raveling	280	
10 th Ave to 11 th Ave	47	Poor	Alligator Cracking, Depression, Long & Trans Cracking, Patching, Rutting, Weathering/ Raveling	280	
11 th Ave to 12 th Ave	32	Very Poor	Alligator Cracking, Bumps and Sags, Depression, Long & Trans Cracking, Patching, Potholes, Rutting, Shoving	280	
12 th Ave to 13 th Ave	51	Poor	Alligator Cracking, Depression, Long & Trans Cracking, Patching, Rutting, Weathering/ Raveling	280	
13 th Ave to 14 th Ave	8	Failed	Alligator Cracking, Long & Trans Cracking, Patching, Rutting, Weathering/ Raveling	280	
14 th Ave to 15 th Ave	38	Very Poor	Alligator Cracking, Bumps and Sags, Long & Trans Cracking, Patching, Rutting	280	
15 th Ave to 17 th Ave	24	Serious	Alligator Cracking, Lane/Shoulder Drop off, Long & Trans Cracking, Patching, Rutting	550	
17 th Ave to 18 th Ave	22	Serious	Alligator Cracking, Long & Trans Cracking, Patching, Rutting, Weathering/ Raveling	280	
18 th Ave to 19 th Ave	46	Poor	Alligator Cracking, Depression, Long & Trans Cracking, Patching, Weathering/ Raveling	280	
19 th Ave to 20 th Ave	24	Serious	Alligator Cracking, Depression, Long & Trans Cracking, Patching, Rutting, Weathering/ Raveling	280	
20 th Ave to 21 st Ave	28	Very Poor	Alligator Cracking, Depression, Long & Trans Cracking, Patching, Rutting, Weathering/ Raveling	280	
21 st Ave to 22 nd Ave	20	Serious	Alligator Cracking, Depression, Long & Trans Cracking, Patching, Weathering/ Raveling	280	
22 nd Ave to 23 rd Ave	24	Serious	Alligator Cracking, Depression, Long & Trans Cracking, Patching, Rutting, Weathering/ Raveling	280	



4.2 CURB AND SIDEWALKS

The curb and gutter section along Main Street is a concrete curb with a 18" gutter pan and 6" high curb section located on both sides of the street and run the entire length of the street. Most sidewalks on Main Street are located on the West side of the street. Three blocks on the East side of the street have sidewalks that parallel Main Street but two of them only run half of the block. The sidewalks along Main Street have varying widths from 4'-5' and varying locations from the back of the curb to offset from the back of curb via a grass strip. When analyzing the sidewalks along Main Street, the main focus was ADA compliance. A summary of the existing curb and sidewalks ADA compliance along Main Street are listed below in Table 4-2. Curb ramps are generally present at all intersections with 36% of the existing ramps not meeting ADA standards. The minimum ADA sidewalk width is 4'.

Sidewalk Widths Meeting ADA Regulations	Total # of Curb Ramps on Main Street	# of Curb Ramps Meeting ADA Regulations	# of Curb Ramps Not Meeting ADA Regulations	Percentage of Curb Ramps Not Meeting ADA Regulations
100%	105	67	38	36%

It should also be noted that approximately 50% of the sidewalk surfaces along Main Street were found to have cracks and vertical settlement, cracks creating trip hazards. Curb and gutter joint separations/settlement was also observed.

4.3 STORM SEWER AND SANITARY SEWER SYSTEMS

All the storm sewer structures and sanitary sewer manholes along Main Street were visually inspected from south to north and labeled in ascending order. A summary of the existing storm sewer structures that were inspected are listed below in Tables 4-3. The sanitary sewer structures inspected are summarized in Table 4-4. It should be noted that none of the storm sewer or sanitary sewer manhole lids were sealed by means of a gasket. The storm drainpipe material was corrugated metal pipe (CMP) and pipe diameters ranged from 12" to 42". Sanitary sewer pipe material was a combination of polyvinyl chloride (PVC) and asbestos. Pipe sizes ranged from 8" to 12". Both systems were gravity systems. The term "sound" in the summary table refers to the underground structures being free from defects and in good working condition. Infiltration refers to whether or not visible leaks were observed in the structure.

Storm Structure	Structure Sound	Pipes Deteriorating	Lid Sound	Ladder Steps	Infiltration	Inlet Pipe Size/Type	Outlet Pipe Size/Type
1	Yes	Yes	Yes	Yes	Yes	42" CMP	42" CMP
2	Yes	Yes	Yes	Yes	Yes	30" CMP	42" CMP
3	Yes	Yes	Yes	Yes	Yes	30" CMP	30" CMP
4	Yes	Yes	Yes	Yes	Yes	30" CMP	30" CMP
5	Yes	Yes	Yes	No	Yes	30" CMP	30" CMP



6	Yes	Yes	Yes	No	Yes	30" CMP	30" CMP
7	Yes	Yes	Yes	No	Yes	30" CMP	30" CMP
8	Yes	Yes	Yes	No	Yes	30" CMP	30" CMP
9	No	Yes	Yes	No	No	30" CMP	30" CMP
10	Yes	Yes	Yes	Yes	Yes	21" CMP	30" CMP
11	Yes	Yes	Yes	Yes	Yes	21" CMP	21" CMP
12	Yes	Yes	Yes	No	Yes	21" CMP	21" CMP
13	Yes	Yes	Yes, offset lid	Yes	Yes	21" CMP	21" CMP
14	Yes	Yes	No	Yes	Yes	21" CMP	21" CMP
15	Yes	Yes	Yes	Yes	Yes	18" CMP	21" CMP
16	Yes	Yes	Yes	Yes	Yes	18" CMP	18" CMP
17	Yes	Yes	Yes	Yes	Yes	18" CMP	18" CMP
18	Yes	Yes	Yes	No	Yes	15" CMP	18" CMP
19	Yes	Yes	Yes	No	Yes	15" CMP	15" CMP
20	Yes	Yes	Yes	No	Yes	12" CMP	15" CMP
21	Yes	Yes	Yes	No	No	12" CMP	12" CMP
22	Yes	Yes	Yes	No	No		12" CMP

Table 4-4 Sanitary Sewer Inspection Data

Sewer Structure	Structure Sound	Pipes Deteriorating	Lid Sound	Steps	Infiltration	Inlet Pipe Size/Type	Outlet Pipe Size/ Type
1	Yes	No	Yes	No	No	8" PVC	8" PVC
2	Yes	No	Yes	Yes	No	8" PVC	8" PVC
3	Yes	No	Yes	Yes	No	8" PVC	8" PVC
4	Yes	No	Yes	Yes	No	8" PVC	8" PVC
5	Yes	No	Yes	Yes	No	8" PVC	8" PVC
6	Yes	No	Yes	Yes	No	8" PVC	8" PVC
7	Yes	No	Yes	Yes	No	8" PVC	8" PVC
8	Yes	No	Yes	Yes	No	8" PVC	8" PVC
9	Yes	No	Yes	Yes	No	8" PVC	8" PVC
10	Yes	No	Yes	Yes	No	8" PVC	8" PVC
11	Yes	No	Yes	Yes	No	8" PVC	8" PVC
12	Yes	No	Yes	Yes	No	8" PVC	8" PVC
13	Yes	No	Yes	Yes	No	8" PVC	8" PVC
14	Yes	No	Yes	Yes	No	8" PVC	8" PVC
15	Yes	No	Yes	Yes	No	8" PVC	8" PVC



16	Yes	No	Yes	Yes	No	8" PVC	8" PVC
17	Yes	No	No	Yes	No	8" PVC	8" PVC
18	Yes	No	Yes	Yes	No	8" PVC	8" PVC
19	Yes	No	Yes	Yes	No	8" PVC	8" PVC
20	Yes	No	Yes	Yes	No	8" PVC	8" PVC
21	Yes	No	Yes	Yes	No	8" PVC	8" PVC
22	Yes	No	Yes	Yes	No	8" PVC	8" PVC
23	No	No	Yes	Yes	No	8" PVC	8" PVC
24	Yes	No	Yes	Yes	Yes	8" PVC	8" PVC
25	Yes	No	Yes	Yes	Yes	8" PVC	8" PVC
26	Yes	No	Yes	Yes	No	8" PVC	8" PVC

4.4 DRINKING WATER SYSTEM

Review of 1983 record drawings illustrate the new 8" and 10" ductile iron water mains were installed with new fire hydrants and water services. The now 40-year-old ductile iron water pipe is reaching the end of its useful service life. The estimated service life for ductile iron pipe installed in non-corrosive soil and ground water is estimated to be 50 years. Maintenance issues with an aging water system such as this include main line water leaks due to corrosion, leaking gate valves that could become inoperable water service corporation fitting leaks and water service failures.

4.5 CORRIDOR INVENTORY

The following table summarizes various site features of the Main Street corridor. Quantities shown in the summary were field measured or derived from available record drawings.

TABLE 4-5 CORRIDOR INVENTORY	ESTIMATED QUANTITY
PAVED ROAD SURFACE	5.6 ACRES
ON STREET PARKING AREA	26,400 FT
BIKE LANES	0
CURBS	13,200 FT
FIRE HYDRANTS	21
SIDEWALKS	109,500 FT
UTILITY POLES	57
UTILITY POLE MOUNTED LED STREET LIGHTS	26
CROSSWALKS	3
CROSSWALK SIGNS	4
STOP SIGNS	43
SPEED LIMIT SIGNS	2
SCHOOL ZONE SIGNS	2
CHILDREN AT PLAY SIGNS	2

4.6 SAFE ROUTES TO SCHOOL

The safe route to the Skagway School includes LED streetlights mounted on utility poles every block of Main Street, three lights in front of the school on utility poles, two crosswalks in front of the school to



cross 15th Avenue and Main Street. Crosswalk ahead signs, two “Children at Play” signs, and two school zone speed limit signs with flashing lights. There is no posted speed limit along Main Street other than the “SCHOOL SPEED LIMIT 20 MPH” signs near the school. Because Main Street is narrower than it could be throughout this section, it is easily congested with parking, creating additional safety hazards for pedestrians in the area.

4.7 UTILITIE POLES AND ABOVE GROUND UTILITIES

Utility pole inspection reveals that there are two (2) poles that are showing signs of deterioration and in need of replacement. Thirteen (13) utility poles are currently located within the pedestrian path creating obstructions in the sidewalk and less than desirable sidewalk widths that do not conform to ADA regulations.

TABLE 4-6 UTILITY POLE SUMMARY

Total # of Utility Poles	# of Utility Poles Needing Replacement	# of Poles Obstructing Pedestrian Path
57	2	13

5.0 RECOMMENDATIONS

Based on the assessment, it is recommended that the Municipality reconstruct Main Streets roadway, sidewalks, storm sewer system, drinking water system, and install new risers and frames on all existing sanitary sewer manholes from 1st Avenue to 23rd Avenue. Additionally, the new roadway section should be designed to utilize the entire 60’ ROW in order to increase both pedestrian and motorist safety.

5.1 ASPHALT PAVEMENT

Most of the roadway sections fall into the poor condition category or below and will continue to deteriorate at a rapid pace. The asphalt pavement is failing from alligating, stress cracks, settlement, potholes and longitudinal joint failure. It is recommended that the Main Street roadway be completely rebuilt from 1st avenue to 23rd avenue including a new subbase Grading A section of 2.5’ in depth with a subgrade reinforcing geotextile fabric, new 6” depth of base course grading D-1 and 3” depth of asphalt pavement. See Appendix B for Main Street typical sections.

5.2 CURB AND SIDEWALKS

A large portion of the sidewalk curb ramps do not meet ADA standards and those that do have frequent cracking throughout. Although Main Street does not see the pedestrian traffic volume that Broadway or State Street do, it still see’s heavy pedestrian traffic from tourists and community members including a large number of children either by foot or by bike. It is recommended that the Municipality replace all of the existing sidewalks along the west side of Main Street with new 5’ wide sidewalks and ADA compliant curb ramps and add 5’ wide sidewalks to the east side of the street with accompanying ADA compliant curb ramps or utilize the space on the east side of the street for a bike path.



5.3 STORM SEWER SYSTEM

Nearly every single CMP storm pipe inspected was found to have corrosion along the invert of the pipe. This condition is conducive to the transportation of fine aggregate from the surrounding soil, compromising the integrity of the roadway. As such the entire storm sewer system should be replaced with new corrugated plastic piping (CPP). CPP will enhance storm water hydraulic capacity and provide for a longer service life. Many of the storm structures were completely missing steps, creating a hazard for maintenance. All the storm sewer and sanitary sewer manhole lids were not sealed and showed evidence of leaking at the lid and/or the lid risers, allowing water and oils from the roadway to enter the system. Nearly every storm sewer manhole access frame is positioned above the finished grade of the road creating a challenge for snow removal that damages both the Municipality's equipment and the individual structures. Due to structural damage observed in many of the storm sewer manholes it is recommended that all of the storm sewer manholes be replaced with new frame and grates installed below the finished grade of the road.

5.4 SANITARY SEWER SYSTEM

It is recommended that all the sewer manhole lids and risers be replaced along Main Street to properly seal the systems from water infiltration. The existing sanitary sewer system structures were found to be without issues other than the frames and risers leaking and the frames being above the roadway grade. Nearly every sanitary sewer manhole access frame is positioned above the finished grade of the road creating a challenge for snow removal that damages both the Municipality's equipment and the individual structures. It is also recommended that the existing sewer manhole structures have the manhole structure joints waterproofed with a exterior water proofing system.

5.5 DRINKING WATER SYSTEM

It is recommended that the existing 8" ductile iron drinking water system be replaced with a 10" HDPE water line with accompanying new 10" gate valves and fire hydrants. New hydrants would be placed with asphalt pads and bollards for ease of access for the MOS Fire Department.

5.6 SAFE ROUTES TO SCHOOL

The existing safe route to school has adequate measures for keeping motorists aware of children pedestrians. It is recommended that crosswalk striping be added along Main Street at every block to establish safe crossing lanes for pedestrians traveling from the east and west side of Main Street. It is also recommended that painted bike lanes be added on Main Street as there currently is no traffic markings for bicyclists. There is currently only one speed limit sign along Main Street located at the intersection of Main Street and State Street with a posted limit of 25 MPH. It is recommended that additional speed limit signs be added along the roadway to keep motorists aware. Additionally, the new roadway section should be designed to utilize the entire 60' ROW in order to increase both pedestrian and motorist safety.

5.7 UTILITY POLES AND ABOVE GROUND UTILITIES

RESPEC recommends that the utility poles in need of replacement be replaced and those that are located within the pedestrian travel way be relocated outside of the travel way to meet ADA sidewalk width standards.



6.0 COST ESTIMATE

We have estimated preliminary construction costs for reconstructing Main Street from the intersection of 1st Avenue to the intersection of 23rd Avenue, a distance of approximately 6,155 feet (22 blocks) for budgetary purposes. In preparing the Main Street Reconstruction preliminary construction cost estimate the following improvements were assumed:

- Main Street typical section to include 12' driving lanes, 4' bike lane, and 8' on street parking area, concrete curb and gutter and 5' sidewalks each side.
- Complete reconstruction of the existing underground storm drain system with new CPP piping and storm drain structures.
- Complete reconstruction of existing public drinking water system with new 10" DIP water mains, new water services and fire hydrants.

RESPEC has prepared a preliminary construction cost estimate for the reconstruction of Main Street as described above and it is attached as Appendix C. The preliminary cost estimate was based upon approximate quantities using the 1983 design/record drawings from the last time Main Street was reconstructed. Applicable unit cost rates were based on recent public bid results in Skagway and Haines and were then applied to the estimated quantities. The preliminary estimate assumes that the reconstruction work will be constructed as a public project in a two construction season approach. State of Alaska prevailing wage rates and performance and payment bonds are assumed to apply. In addition, the estimate includes "soft costs" for survey, soils, engineering design, permitting, and inspection/construction administration. Finally, the estimate includes a 10% pre-design contingency for unanticipated site conditions and project requirements. In summary the costs are as follows:

Estimated Construction Cost =	\$28,150,615
Survey, Soils, Engineering Design @ 10% =	\$2,815,062
Permitting, Legal, Skagway Admin @ 5% =	\$1,407,531
Project Inspection/Administration @ 10% =	\$2,815,062
Pre-design Contingency @ 10% =	<u>\$2,815,062</u>
ESTIMATED CONSTRUCTION TOTAL =	\$38,003,330



APPENDIX A

PHOTOGRAPHS OF MAIN STREET INSPECTION

APPENDIX A: PHOTOGRAPHS OF MAIN STREET INSPECTION



Photo 1 Example of a pavement joint failure



Photo 2 Example of alligator cracking



Photo 3 Example of a pothole



Photo 4 Example of longitudinal cracking



Photo 5 Example of transverse cracking



Photo 6 Example of cracked concrete collar around storm drain manhole and surrounding alligator cracking



Photo 7 Example of manhole lid above grade



Photo 8 Example of manhole lid above grade



Photo 9 Example of water valve box above grade



Photo 10 Example of longitudinal cracking and patch work



Photo 11 Example of distortion.



Photo 12 Example of heaving.



Photo 13 Example of rutting



Photo 14 Example of rutting



Photo 15 Example of rutting and alligator cracking



Photo 16 Example of severe alligator cracking and patch work



Photo 17 Example of rutting and longitudinal cracking



Photo 18 Example of concrete patch



Photo 19 Example of concrete sidewalk cracking



Photo 20 Example of concrete sidewalk cracking and heaving



Photo 21 Example of sidewalk curb ramp not meeting ADA standards



Photo 22 Example of concrete sidewalk not meeting ADA standards



Photo 23 Example of corroding storm drain pipes



Photo 24 Example of a sanitary sewer manhole



Photo 25 Example of sanitary sewer manhole with infiltration



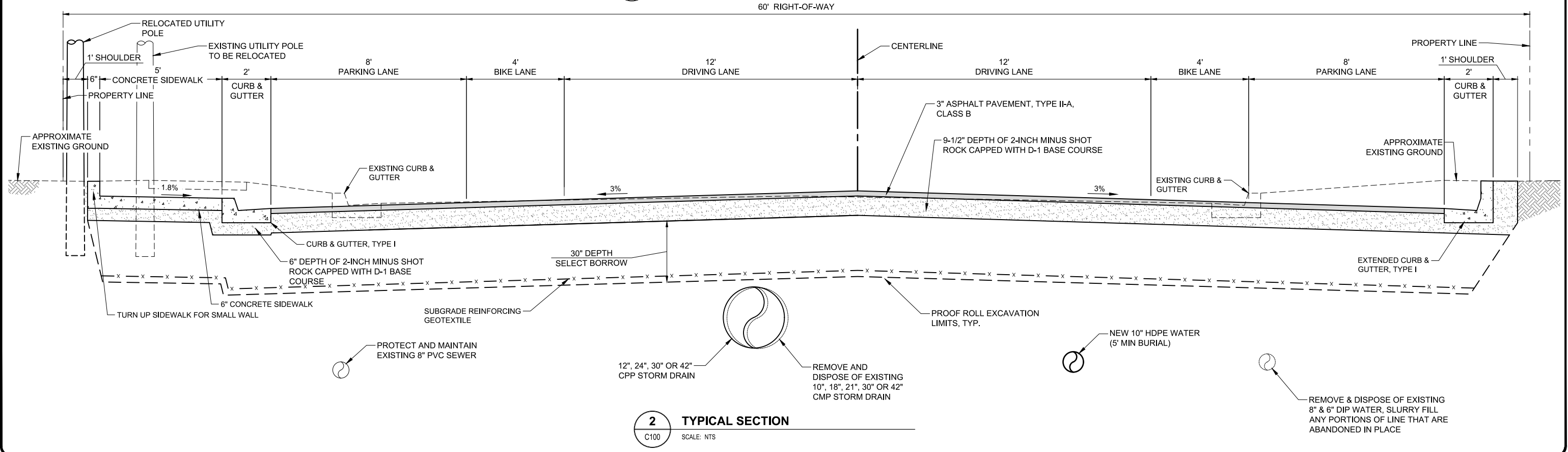
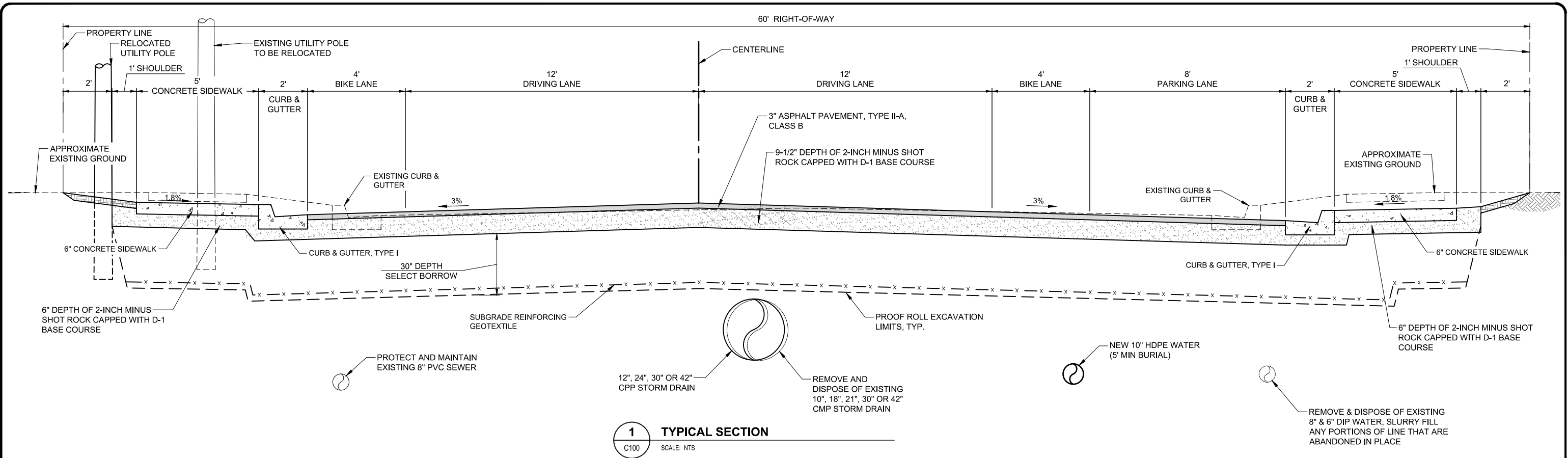
Photo 26 Example of damaged sanitary sewer manhole lid



APPENDIX B

MAIN STREET TYPICAL SECTIONS





N:\Projects\1014\22003\MCS_Main_SIS\Reports\Condition Report\MAIN ST TYPICAL SECTION.dwg PLOT: November 03, 2022 at: 1:09pm

DESIGN	SBK
DRAWN	SBK
CHECK	JMP
APPROVED	JMP
FILE:	



RESPEC
Juneau, AK
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**MAIN STREET
CONDITION ASSESSMENT
MUNICIPALITY OF SKAGWAY**

**APPENDIX B
TYPICAL SECTION**



APPENDIX C

MAIN STREET ITEMIZED CONSTRUCTION COST ESTIMATE



**MUNICIPALITY OF SKAGWAY
MAIN STREET RECONSTRUCTION
PRELIMINARY COST ESTIMATE
November 3, 2022**

PAY ITEM NO.	PAY ITEM DESCRIPTION	PAY UNIT	APPROX. QUANTITY	UNIT PRICE		AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
1505.1	Mobilization	Lump Sum	All Req'd	Lump	Sum	\$ 2,600,000	00
1560.1	Traffic Control and Maintenance	Lump Sum	All Req'd	Lump	Sum	\$ 750,000	00
1570.1	Erosion and Sediment Control/SWPPP	Lump Sum	All Req'd	Lump	Sum	\$ 300,000	00
2201.1	Clearing and Grubbing	Lump Sum	All Req'd	Lump	Sum	\$ 50,000	00
2202.1	Excavation	CY	26,850	\$ 35	00	\$ 939,750	00
2202.2	Select Borrow, Grading A (3" Minus)	CY	21,350	\$ 75	00	\$ 1,601,250	00
2202.3	Shoulder Grading	Lump Sum	All Req'd	Lump	Sum	\$ 30,000	00
2204.1	2-Inch Minus Shot Rock w/ Base Course	CY	11,635	\$ 150	00	\$ 1,745,250	00
2204.2	Base Course Grading D-1	Ton	3,910	\$ 110	00	\$ 430,100	00
2402.1	Rehabilitate Sanitary Sewer Manhole, Type I	Each	26	\$ 4,000	00	\$ 104,000	00
2501.1	12-Inch Pipe Culvert	LF	3,160	\$ 150	00	\$ 474,000	00
2501.2	18-Inch Pipe Culvert	LF	1,415	\$ 200	00	\$ 283,000	00
2501.3	24-Inch Pipe Culvert	LF	1,415	\$ 250	00	\$ 353,750	00
2501.4	36-Inch Pipe Culvert	LF	2,222	\$ 300	00	\$ 666,600	00
2501.5	42-Inch Pipe Culvert	LF	280	\$ 375	00	\$ 105,000	00
2501.6	6-Inch Underdrain	LF	880	\$ 150	00	\$ 132,000	00
2502.1	Storm Drain Manhole, Type I	Each	20	\$ 10,000	00	\$ 200,000	00
2502.2	Storm Drain Manhole, Type II	Each	3	\$ 15,000	00	\$ 45,000	00
2502.4	Catch Basin, Type IV	Each	81	\$ 6,000	00	\$ 486,000	00
2502.5	Connect to Existing Manhole	Lump Sum	All Req'd	Lump	Sum	\$ 25,000	00
2601.1	6-Inch D.I. Water Pipe	LF	630	\$ 125	00	\$ 78,750	00
2601.2	8-Inch D.I. Water Pipe	LF	2,200	\$ 160	00	\$ 352,000	00
2601.3	10-Inch D.I. Water Pipe	LF	6,155	\$ 200	00	\$ 1,231,000	00
2601.4	Temporary Water System	Lump Sum	All Req'd	Lump	Sum	\$ 350,000	00
2602.1	6-Inch Gate Valve	Each	12	\$ 4,000	00	\$ 48,000	00
2602.2	8-Inch Gate Valve	Each	44	\$ 5,000	00	\$ 220,000	00
2602.3	10-Inch Gate Valve	Each	44	\$ 7,000	00	\$ 308,000	00
2603.1	Fire Hydrant Assembly w/Guard Posts	Each	21	\$ 20,000	00	\$ 420,000	00
2605.1	1-Inch Water Service	Each	35	\$ 5,000	00	\$ 175,000	00
2605.2	2-Inch Water Service	Each	2	\$ 7,500	00	\$ 15,000	00
2605.4	Locate Water Services	Lump Sum	All Req'd	Lump	Sum	\$ 50,000	00

**MUNICIPALITY OF SKAGWAY
 MAIN STREET RECONSTRUCTION
 PRELIMINARY COST ESTIMATE
 November 3, 2022**

PAY ITEM NO.	PAY ITEM DESCRIPTION	PAY UNIT	APPROX. QUANTITY	UNIT PRICE		AMOUNT	
				DOLLARS	CENTS	DOLLARS	CENTS
2607.1	Pipe Insulation	Board	250	\$ 110	00	\$ 27,500	00
2702.1	Construction Surveying	Lump Sum	All Req'd	Lump	Sum	\$ 500,000	00
2709.1	Topsoil	CY	570	\$ 300	00	\$ 171,000	00
2709.2	Topsoil Finish Grading	MH	150	\$ 150	00	\$ 22,500	00
2710.1	Seeding, Hydraulic Method, Type III	SU	6	\$ 5,000	00	\$ 30,000	00
2714.1	Filter Cloth, Type C	SY	43,000	\$ 6	00	\$ 258,000	00
2716.1	Water and Storm Sewer Pipe Removal	Lump Sum	All Req'd	Lump	Sum	\$ 120,000	00
2717.1	Storm Structure Removal	Lump Sum	All Req'd	Lump	Sum	\$ 100,000	00
2718.1	Sign Assembly	Each	53	\$ 800	00	\$ 42,400	00
2720.1	Painted Traffic Markings	Lump Sum	All Req'd	Lump	Sum	\$ 80,000	00
2722.1	Remove and Reset Chain Link/Wood Fence	Lump Sum	All Req'd	Lump	Sum	\$ 80,000	00
2723.1	Remove and Relocate Landscaping	Lump Sum	All Req'd	Lump	Sum	\$ 100,000	00
2801.1	A.C. Pavement, Type II-A, Class B	Ton	8,423	\$ 625	00	\$ 5,264,375	00
2806.1	Subgrade Reinforcement Geotextile	SY	31,753	\$ 30	00	\$ 952,590	00
3302.1	Concrete Curb and Gutter	LF	14,930	\$ 110	00	\$ 1,642,300	00
3302.2	Concrete Sidewalk, 4-Inches Thick	SY	7,767	\$ 250	00	\$ 1,941,750	00
3302.3	Concrete Wall at Back of Sidewalk	CY	231	\$ 2,000	00	\$ 462,000	00
3304.1	Removal of Curb and Gutter	LF	14,930	\$ 25	00	\$ 373,250	00
3304.2	Removal of Concrete Sidewalk	SY	4,700	\$ 35	00	\$ 164,500	00
16000.1	Relocate Existing Utility Poles Out of Sidewalk	Lump Sum	All Req'd	Lump	Sum	\$ 1,250,000	00

ESTIMATED CONSTRUCTION SUBTOTAL =	\$ 28,150,615 .00
SURVEY, ENGINEERING DESIGN 10%	\$ 2,815,062 .00
PERMITTING / LEGAL/MOS ADMIN 5%	\$ 1,407,531 .00
PROJECT INSPECTION/ADMINISTRATION 10%	\$ 2,815,062 .00
PRE-DESIGN COST ESTIMATE CONTINGENCY 10%	\$ 2,815,062 .00
ESTIMATED CONSTRUCTION TOTAL =	\$ 38,003,330 .00