REDEFINE THE DRIVE

NORTH DuSABLE LAKE SHORE DRIVE

NORTH DUSABLE LAKE SHORE DRIVE STUDY SPOTLIGHT

SURFACE WATERS

Level 3 Screening Criteria: Results

February 2022

The North DuSable Lake Shore Drive (NDLSD) Phase I Study is currently evaluating the five remaining NDLSD Build Alternatives ("Level 3 Screening"). As part of this evaluation, nearly 30 different criteria are being considered, including Performance, Social, Economic and Environmental factors. The project team has separated criteria into two categories: 1) Distinguishing criteria contain results that vary amongst alternatives, and 2) Non-distinguishing criteria contain results that are the same or similar amongst alternatives. Impacts to Water Quality, Waters of the United States, and the Impervious Surface Area are among the environmental factors being considered, and this Study Spotlight provides additional details and preliminary non-distinguishing results for each of these criteria. For additional details regarding the overall Phase I Study, please visit the project website at northdusablelakeshoredrive.org.

WATER QUALITY

Water quality is an important factor in supporting healthy ecosystems. Human activities can greatly affect the quality of water resources by contributing pollutants, fertilizers, and sediment to lakes and rivers via surface water runoff from urban areas or agricultural fields. Surface waters, which are protected by the Clean Water Act (CWA), can also be impacted by the construction, operation, and maintenance of transportation facilities like NDLSD.

Currently, stormwater runoff within the NDLSD project corridor drains primarily to the City of Chicago's combined sewer system. When the combined sewers become overburdened as a result of large storm events, they overflow into adjacent waterways. Combined sewer overflows from the project study area (and other tributary areas) occur into the Main Branch and the North Branch of the Chicago River. Lake Michigan (including harbors and lagoons) also receives direct stormwater runoff from portions of the project study area.

Treatments

The proposed NDLSD water quality approach builds upon the methods used on a previous project: the rehabilitation/ reconstruction of South DuSable Lake Shore Drive (SDLSD) from 67th Street to Interstate 55 during the early 2000s. The SDLSD project's primary stormwater treatment was the use of "first flush" stormwater capture, which refers to the initial surface runoff of a rainstorm. During this phase of the storm, stormwater runoff, especially from paved areas, typically has a greater concentration of contaminants as compared to the remainder of the storm. Research indicates that the build-up of pollutants that have accumulated on paved surfaces in dry weather quickly wash off at the beginning of a storm. Research also indicates that first flush capture continues to be a "state-of-the-practice" water quality Best Management Practice (BMP).

Additional BMPs are also being investigated to minimize the concentration of pollutants in stormwater discharge to Lake Michigan, such as:

- infiltration practices
- detention/retention
- sediment basins
- constructed wetlands
- swales and buffer strips
- manufactured products (e.g., filters)

The same approach for addressing potential water quality issues resulting from the proposed improvements will be applied to each alternative. Therefore, water quality benefits are anticipated to be similar across all of the remaining alternatives.

WATERS OF THE UNITED STATES (WOUS)

What is WOUS?

WOUS is a term in the Clean Water Act (CWA) that establishes which waters are under federal jurisdiction. Within the NDLSD project limits, Lake Michigan, its harbors, and the South Lagoon are considered to be WOUS. Inland waters, tributaries, or wetlands may also be considered WOUS if they have a direct surface water connection to a navigable waterway (e.g., Lake Michigan) or meet other specific criteria.

The U.S. Environmental Protection Agency (USEPA) provides a detailed definition of WOUS on their website: here.

What is an impact? An "impact" to WOUS is the loss of area as a result of a proposed activity (e.g., the discharge of fill material). Each of the NDLSD alternatives will impact two WOUS including Lake Michigan and the South Lagoon. Lake Michigan will be filled to soften the Oak Street curve, reconfigure the Ohio Street, Oak Street, and North Avenue beaches and nearby parkland, and accommodate roadway and parkland modifications near Belmont Harbor. A small portion of the South Lagoon will be filled to realign NDLSD south of Fullerton Avenue.

Impact Summary: As shown in the summary table to the right, the "Essential" alternative results in the least impact to WOUS, while the "Addition" alternative has the greatest impact to WOUS. Methods to address negative effects of any WOUS impacts will be determined as part of upcoming regulatory agency coordination.

ALTERNATIVE	Acres of Fill			
	South Lagoon	Lake Michigan	Belmont Harbor	Total
The Essential	0.08	123.58	7.65	**131.31**
The Addition	0.69	125.26	10.61	**136.56**
The Exchange, The Flex, The Double Flex	0.36	125.07	10.61	**136.04**

IMPERVIOUS SURFACE AREAS

What is an impervious surface?

Impervious surface areas are typically man-made water-resistant structures—such as asphalt and concrete pavements as well as rooftops (*see diagram below*).

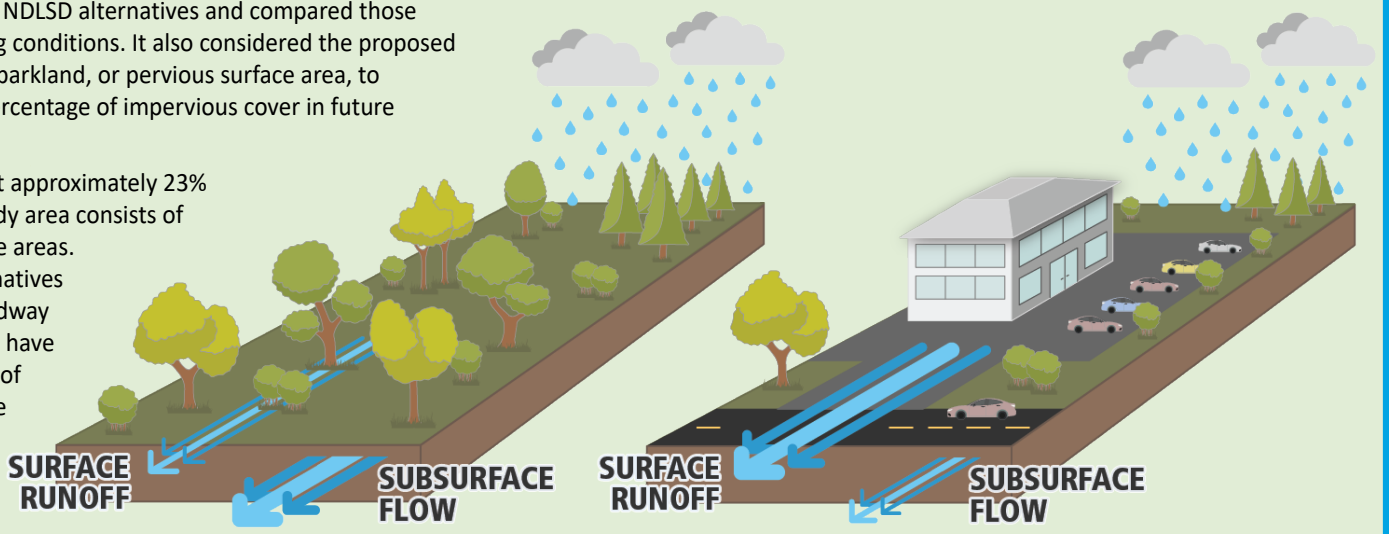
Impervious surface areas are usually expressed as a percentage of a defined total land area. Impervious surface areas increase with urbanization. In rural settings, impervious areas may only be one or two percent while in dense urban settings, it can be over 90 percent.

IMPERVIOUS AREAS IN RELATION TO NDLSD

As part of this study, impervious surface areas within Lincoln Park, including roadway pavement, trails, sidewalks, parking lots, and shoreline revetment walls, were quantified. This analysis focused on the changes in impervious surface areas resulting from the NDLSD alternatives and compared those changes to existing conditions. It also considered the proposed amount of added parkland, or pervious surface area, to understand the percentage of impervious cover in future conditions.

It is estimated that approximately 23% of the existing study area consists of impervious surface areas. Because the alternatives have different roadway features, they also have differing amounts of impervious surface areas.

PERVIOUS VS IMPERVIOUS SURFACE EXAMPLES



Impact Summary

As shown in the table to the right, improvements that are common to all alternatives, such as separated trail facilities, shoreline improvements, and parking lot modifications, result in a 0.8% increase of impervious surface area compared to the existing condition. For those elements unique to a specific alternative, the "Essential" alternative has the smallest increase, while the "Addition" alternative has the largest increase in impervious cover. The proposed stormwater drainage systems would be designed to accommodate any increases in impervious surface area.

Overall, the NDLSD Alternatives will continue to be refined to minimize or avoid impacts on Surface Waters to the extent possible.

ALTERNATIVE	% Increase in Impervious Surface Area from Exisitng
Common Improvements to All Alternatives	+0.8%
Improvements Unique to The Essential	+0.8% (+1.6% total)
Improvements Unique to The Addition	+2.7% (+3.5% total)
Improvements Unique to The Exchange, Flex, Double Flex	+2.1% (+2.9% total)

If you have any comments on the information in this handout, or any other project materials, please email the project team at info@ndlsd.org.

Level 3 Screening Criteria Category: ENVIRONMENTAL