DRAFT

Environmental Performance Requirements for the IL 53/120 Corridor

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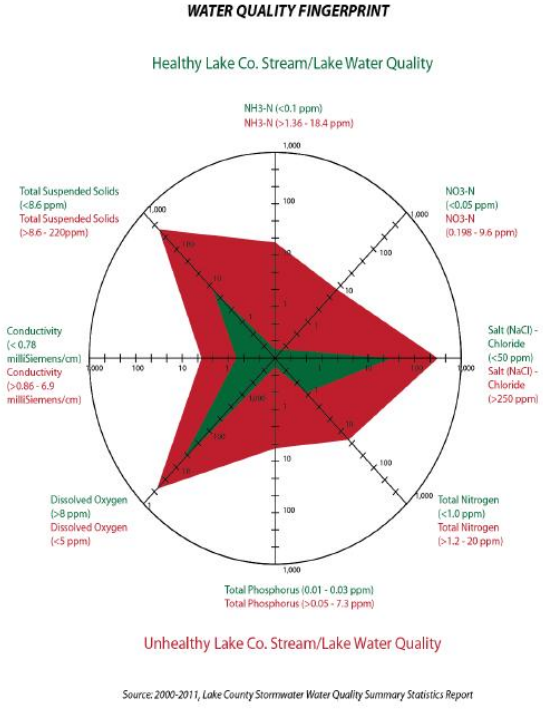
GENERAL ROAD REQUIREMENTS:

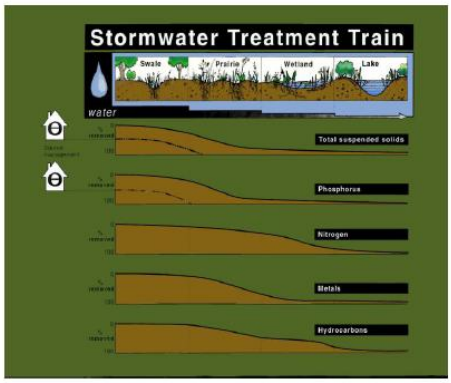
Road is a 4-lane limited access road with a 45 mph posted speed limit.

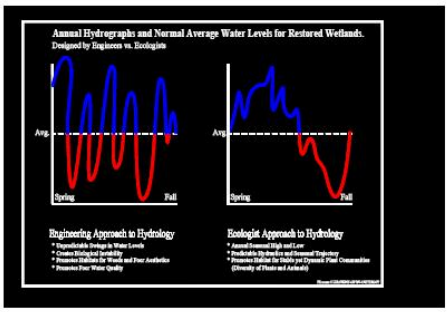
Water Volume Standards: The performance requirement is treat 100% of stormwater generated for a 10 year event for water volume management purposes. The delivery hydrographs to all receiving water bodies will achieve a run off hydrograph consistent with generating a maximum of up to 2 bankfull stages in receiving streams or wetlands on average annually and meet the runoff volume reduction requirements of Lake County Watershed Development Ordinance.

Water Quality Standards: The performance requirement is to treat 100% of stormwater generated up to the 2 year storm event for water quality management purposes. Water leaving the project will meet quality standards for key chemical and physical parameters defined as the highest quality (upper 10 percentile) measurements from the 2000-2011 Lake County Water Quality Parameter, Statistics Summary Report for lake and other water bodies in Lake County.

Figure 10 . Storm Water Quality







Where higher feasible performance goals by the use of the Stormwater Treatment Train design are demonstrated in appropriate locations, they will be met. Figure 1 displays graphically some of the key water quality statistics for this 10 percentile level (Healthy examples of Lake County water quality) and the lower 10 percentile scores which are examples, for reference and comparison purposes only, of measured levels of the same water quality parameters for unhealthy water quality conditions.

Stream crossing quality and hydraulics: Best management practices will be used to control erosion and sedimentation from construction and roadway operation. Streams and drainage ways crossing the corridor, including existing impaired streams will be restored (including bank, bed and channel restoration, revegetation, invasive plant removal, habitat enhancement, buffer replanting, etc.) for a distance of up to 500' up and downstream. The definition of restoration type and design will be the result of a two step process:

1) Completion of a "stream and drainage way asset inventory" investigation and
2) Modeling of shear stress and hydraulic geometry changes.

Approaches to deicing: The ISTHA will establish a public deicing plan (not compromising road use safety), specific to the project if necessary, that considers the following:

- Defined salt or salt alternative application rates based on road temperature and impending weather conditions.[1]
- An anti-icing approach, applying a deicer to the roadway before a frost or snowfall (based on weather forecasting and sensor data) to prevent melted snow and ice from forming a bond with the road surface.
- A pre-wetting approach, rather than applying dry salt to roadways.[2]
- Alternative deicing compounds, such as the sugar beet-derived formula developed by McHenry County DOT.

Currently the Tollway uses remote sensors embedded in the roadway pavement to provide data on pavement temperature and other weather data sensors so that maintenance staff can focus de-icing efforts to specific locations rather than mass distribution of de-icing material. The Tollway will share weather and pavement data with surrounding agencies and road districts so those

Air quality: The recommended performance standard is that the predicted concentrations of carbon monoxide and fine particulate matter at all receptors in the project area (i.e., residences within 0.5 miles of centerline) in 2040 are 10% lower than National Ambient Air Quality Standards. The Illinois Environmental Protection Agency and CMAP are responsible for demonstrating that proposed transportation projects in the Chicago area will not contribute to violations of federal air quality standards. This analysis of "conformity" with federal air quality standards has already been completed and approved for the Central Lake County corridor.[3]

[1] Examples of application rate guidelines can be found in the Minnesota Snow and Ice Control field handbook (http://tinyurl.com/7zsoyy3).

[2] Pre-wetting and anti-icing is discussed more fully in a local study for the DuPage River Salt Creek Workgroup available at http://tinyurl.com/7zp9vss.

[3] CMAP's conformity analysis for GO TO 2040 includes the IL 53/120 Corridor (CLCC) and can be found at http://tinyurl.com/72p4q4e. The Clean Air Act requires that metropolitan transportation plans (such as GO TO

Despite meeting this general regional requirement, localized air quality in the vicinity of the roadway could be further impaired from existing conditions. This roadway design will be required to follow new regulations, and the "hotspot analysis" – to estimate air pollutant concentrations actually experienced by people around the road, especially for fine particulates. By convention a project of air quality concern is considered one with more than 10,000 trucks per day, which this project is unlikely to have. Nevertheless, a hotspot analysis will be performed to verify conditions.

Roadway Lighting: High mast tower lighting will not be allowed for the IL 53/120 Corridor. For sections of roadway that meet roadway lighting warrants, roadway lighting will use full cut off roadway light fixtures to prevent light trespass and reduce sky glow, glare, and light clutter.[4] Project will meet all "Dark Sky" requirements for new projects.

In order to control light pollution, no-spillover luminaires including shielding on the fixtures will be required for all roadway lighting. LED high efficiency lighting methods will be required.

In-roadway lighting to illuminate the lane lines is encouraged for use along the corridor. Installation and in-roadway technology is anticipated to be standardized in the near future. This lighting method may be used where overhead lighting is not warranted, or to supplement overhead lighting. Illuminous paint is further encouraged for lane marking and may be a more cost effective solution.

Traffic Noise: The traffic noise decibel limit to adjacent receptors will be 60 dBA.

The 45 mph speed limit is the primary method for reducing traffic noise. Depressing the roadway below grade when feasible as well as berming and landscaping the land between the roadway and the outer edge of the ROW will further reduce the traffic noise.

Traffic noise studies will be conducted utilizing the latest version of the FHWA approved Traffic Noise Model (TNM) for nearby receptors along the IL 53/120. If the traffic noise levels exceed 60dBA, barrier analyses will be conducted to determine appropriate barriers to reduce the traffic noise levels to 60dBA or lower. These barriers may consist of berms and landscaping, retaining or noise walls.

Energy and material use: IL 53/120 is to meet ILAST energy use and materials certifying points or the following certification requirements:

All Tollway buildings within the project area should be LEED certified if they meet the occupancy and square footage requirements of the program.

2040), transportation improvement programs (TIPs), and Federal projects conform to the purpose of the State Implementation Plan (SIP) for air quality. Conformity to a SIP means that transportation projects will not cause or contribute to any new violations of the national ambient air quality standards (NAAQS), increase the frequency or severity of NAAQS violations, or delay timely attainment of the NAAQS or any required interim milestone.

[4] ILAST L-2: Stray Light 2011

The prime contractor, design-build firm, or construction management firm should have an environmental management system (EMS) and be certified under ISO 14000 standards.

The IL 53/120 should be certified under the Greenroads program and follow other Green infrastructure sustainable programs and certification programs such as the new Zoftness infrastructure program of Harvard University.[5]

During the design process for the road, value engineering will be aligned with sustainability, by conducting a comprehensive review of money savings strategies for reduced embedded green house gas emissions such as in concrete, electrical needs for lighting, road maintenance requirements and materials and a comprehensive matrix of strategies starting with the I-Last documentation, using the ISO 14000 standards, the new ANSI SCS-001 and SCS 002 Life Cycle analysis protocols, the Zoftness infrastructure sustainability program.

ADDITIONAL REQUIREMENTS FOR "HOT SPOTS"

The highway alignment passes near and within the watersheds at a distance whereby a conventionally design high would impact existing environmentally sensitive natural resources areas. While the design of the roadway, will include specific details to reduce or eliminate some or most of the environmental impacts, the proximity of the roadway, disruption of landscape continuity will require that natural resources in the and abutting the ROW will need to be restored, enhanced, protected, and monitored. The goal of this program is to restore and enhance impaired areas within and abutting the ROW that will remain after road construction activities, and to improve all natural resources areas from their existing pre-project condition. The recommended performance standards are as follows:

Enhancement Areas: Hot spots such as Surrey Marsh, Indian Creek Marsh north of Gilmer Road, and Northern Unit of Almond Marsh should be focused on for enhancement purposes, pending landowner willingness and cooperation. The enhancements should achieve a plant compositional assessment for the cover, frequency and diversity of plant species that achieves the compositional importance values found in the same ecosystem and community types based on the Illinois Natural Areas Inventory Data Base from Class B or better quality setting. Furthermore they attain a Floristic Quality Index score of at least 30 no more than five years following project construction and meet the measurement requirements of the Lake County SMC and The Chicago District of the U.S. Army Corps of Engineers performance standards for wetland mitigation banks.

Restoration, management, maintenance and monitoring plans and programs will be developed and meet the approval of agencies, landowners, and other stake holders (e.g. Liberty Prairie

[5] http://www.greenroads.org/. From the website, "Greenroads is a sustainability rating system for roadway design and construction. It is applicable to all roadway projects [and] is a collection of sustainability best practices, called "credits," that relate to roadway design and construction. Achieving these credits can earn points toward a total score for the project, and in general, this Greenroads score can be used as an indicator of sustainability for the roadway. Four different certification levels (rating) are available depending upon total score on a voluntary basis." The Environment and Sustainability working group had considered using the I-LAST manual to guide sustainability decisions, and this is appropriate; however, I-LAST is not a certification program, which Greenroads is.

Conservancy, Long Grove Open Space Group, and Home Owner Associations, Illinois Nature Preserves Commission, IDNR, Lake County Forest Preserve and others) in or adjacent to all hot spots and other environmentally sensitive locations, including the Stormwater Management Treatment Areas (SMTAs) areas created outside of the ROWs addressed in this project plan.

Legal protection will be secured for an acreage of land necessary to provide:

1) 100% compensation for any unavoidable indirect impacts to natural resources. and
2) 100% of all direct impacts from construction, operations, and operations and maintenance for the ROW and any out of ROW improvements including for any STMAs that are unable to meet the water volume and quality performance measurement criteria above.

Indirect impacts will be defined initially by modeling, using latest scientific evidence and studies to establish the magnitude of the potential indirect impacts, and secondly by studies to confirm the field conditions and impacts. This definition will be overseen by the Blue Ribbon Council's Environmental committee or equivalent in the future.

Direct impacts to be compensated include the 100% of the raw acreage of land, and 100% of the regulated natural resources impacted that is equal to or calculated by any regulatory required mitigation replacement ratio, from impacts within the construction zone including but not limited to grading, filling requirements, and paved, graveled, and other surfaces created by the highway. Land preservation should be concentrated within the enhancement focus areas in accordance with existing plans -- notably in the Liberty Prairie Reserve, the Heron Creek and Egret Marsh Forest Preserves, Indian Creek Marsh, Squaw Creek area, and other important natural resource features -- but can be accomplished outside the focus areas if sufficient land is not available within them. The goal is to re-connect now and future fragmented ecological systems created by the proposed roadway.

A split couplet design is envisioned as one of the western Route 53/120 by pass options that would remain as a single 4-lane road until just south and east of the oak savanna remnant along route 120, just West of Hainsville Road and the rail road ROW. Along this bypass route, it is the intent of this plan to protect the oak grove this and adjacent Big Sag Wetland Bank and to develop a combined restoration plan that satisfies the wetland bank permit and prospectus requirements while simultaneously protecting, restoring, enhancing, managing, monitoring, this larger landscape.

Technical and operational plans for protecting, restoring, managing, and enhancing habitat connectivity and continuity will be created, reviewed and approved by various agency, landowners, Illinois Nature Preserves Commission (where appropriate) and other stakeholders (.e.g. Liberty Prairie Conservancy, Long Grove Open Space group, Lake County Forest Preserve District, etc and others as appropriate) to affirmatively and to completely offset and compensate for the short and long term, and cumulative impacts of the highway on fragmenting wildlife habitat. The plans will create a network and system of wildlife crossing structures and approaches for specific locations as needed to support the safe passage of the full range of wildlife groups and species across the landscape, through waterways and drainage networks, crossed or abutting wetlands, or movement between habitat patches. As a part of this planning

process, the habitats and movement patterns for particular species will be characterized to create the specific strategies to address fragmentation as a part of the a site-specific wildlife assessments used to determine the locations, specific design options and needs for wildlife crossings.

Direct unavoidable impacts to federal jurisdictional wetlands and waters of the United States, and Lake County Jurisdictional isolated wetlands and waters will be compensated at an overall average ratio that is higher than required by permitting agencies and at least 5:1.

Mitigation requirements under the federal and county regulations allows for the inclusion of some percentage of the mitigation to include protection, enhancement as well as wetland construction or restoration. Any mitigation will be designed, constructed, managed, monitored and will included required compliance reporting in accordance with relevant governing regulations and rules, agency guidance, and SMC plans or a stakeholder-guided plan developed for the project area.