DRAFT Road Treatment for Sensitive Areas

This document provides design recommendations for especially sensitive areas along the Route 52/120 Corridor. These conceptual highway environmental treatment solutions have been developed by Steve Apfelbaum of Applied Ecological Services. They will be discussed by the Environment and Sustainability Working Group on March 19, 2012.

Please note that the figures included in this document are **for illustration purposes only.** They are meant to communicate an environmental approach, and do not address specific engineering detail or cost.

Introduction

This section provides the rationale and recommendations for all road sections, conceptual storm water management areas, and land restoration and protection areas where some of the mitigation for the roadway is envisioned to occur under this program (**Please see Figures 1A, 1B, 1C, 1D).** The concept morphs a 4 lanes, 2 shoulder, 45 mph average speed toll way to minimize or avoid environmental impacts along the Route 53 and a bypass configuration that connects the north-south route 53 to the existing route 120 corridor(s). Several options are depicted that are identified at this time as requiring further study, but all are presented with the premise that whichever route is eventually chosen will meet the performance standards and be responsive to the guidelines presented below for each segment of the overall roadway.

Figure 1A. Environmental Roadway Treatments, Conservation protection and restoration lands, Storm water Management Polishing Areas (SMPA's).

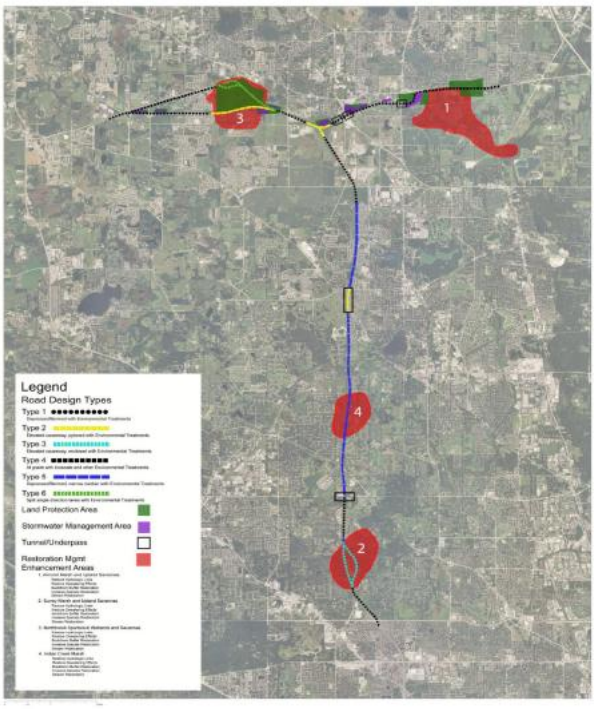
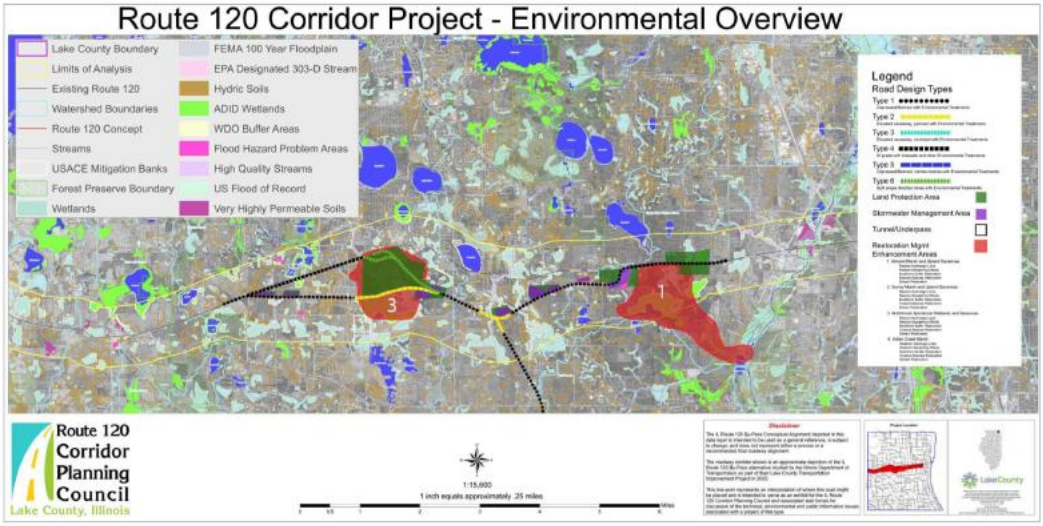


Figure 1B. Environmental Roadway Treatments, Conservation protection and restoration lands, Storm water Management Polishing Areas (SMPA's).



Figures in this document are **for illustration purposes only.** They do not address engineering detail or cost.

Figure 1C. Environmental Roadway Treatments, Conservation protection and restoration lands, Storm water Management Polishing Areas (SMPA's).

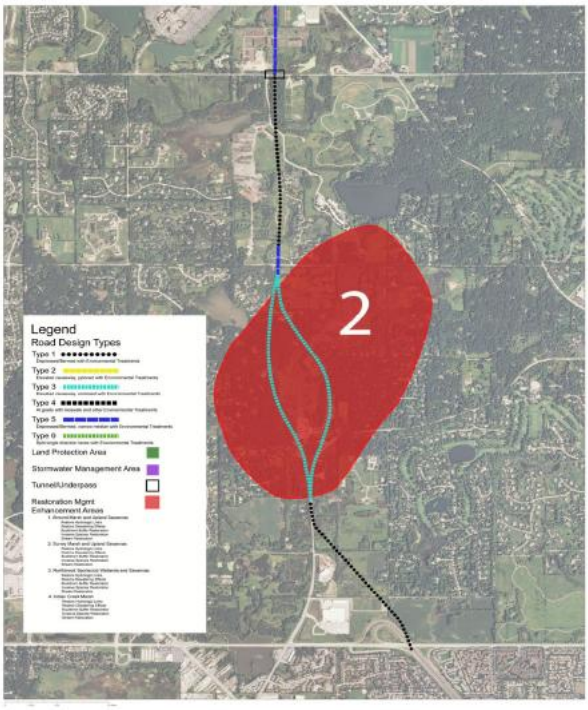
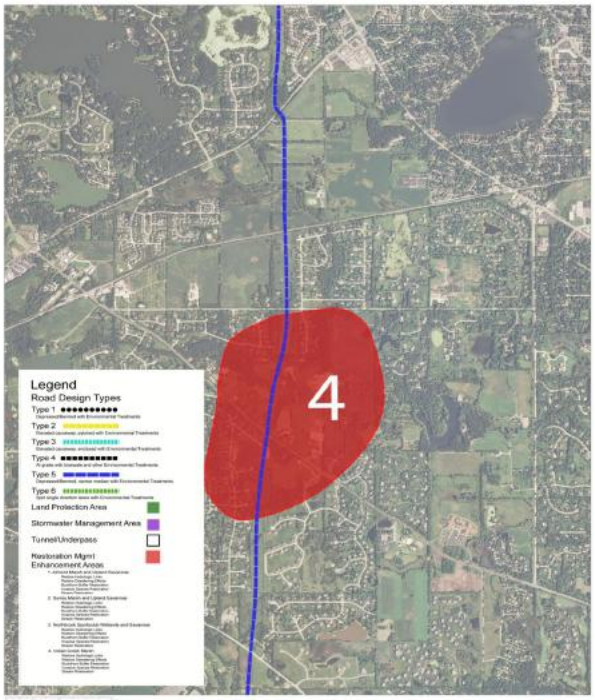


Figure 1D. Environmental Roadway Treatments, Conservation protection and restoration lands, Storm water Management Polishing Areas (SMPA's).



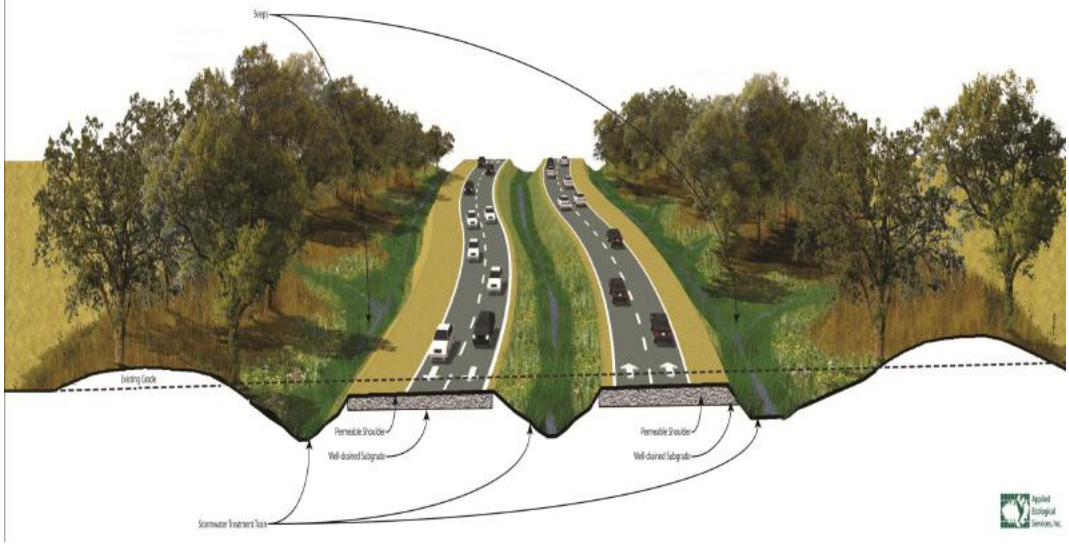
Figures in this document are **for illustration purposes only.** They do not address engineering detail or cost.

Figure 1 defines 6 Environmental Road Treatment Types as follows:

1. **Conservation Lands and Organic Agricultural Roadway Design**: Depressed and Bermed roadway with wide median and perimeter storm water treatment systems that are linked to external (outside the ROW) water polishing areas. Depressed conditions continue as tunneled sections, beneath Route 137 and the two rail lines (**Please See Figures 2A**) to the west, and as a tunneled section **(Figure 2B)** beneath U.S. route 45 and eastward and follow Grayslake Route 120 plan, **3E**.

Figure 2A. Environmental Road Type 1.

Depressed, Bermed + Full environmental controls



Figures in this document are **for illustration purposes only.** They do not address engineering detail or cost.

Figure 2A. Environmental Road Type 1.
Depressed, Bermed + Full environmental controls

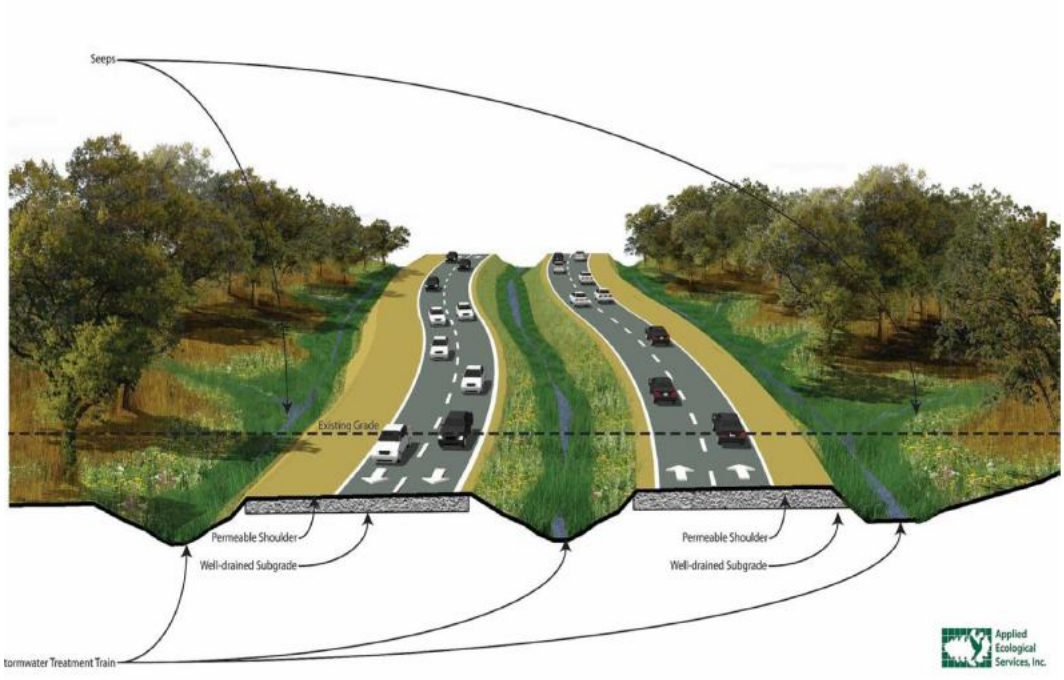


Figure 2B. Tunnel Beneath Existing Rt 137 and two rail lines, viewing east to west

Figures in this document are **for illustration purposes only.** They do not address engineering detail or cost.

2. **Elevated Causeways**: These are pylon supported roadway designed to traverse poor soils areas and some unavoidable wetland features as depicted in the aerial photograph showing the causeway that existing on Lake Cook Road, west of Route 53, as shown in **Figure 3 (This photograph is used to illustrate this scenario).** These causeways will be elevated in the middle so as to drain storm water toward the land-ward ends of the causeway where the water will be pretreated and final polished in internal and external water polishing areas.

Figure 3. Elevated Causeway

3. **Elevated and Enclosed Causeways**: These are pylon supported roadways designed to bridge and traverse pool soils, and some unavoidable wetland features as depicted in **Figure 4.** . These roadway sections are also designed to create and perhaps compliment a local aesthetic, and to accomplish noise performance outcomes through using the enclosure for noise-proofing and noise reduction. These causeways will also be elevated in the middle so as to drain storm water toward the land-ward ends of the causeway where the water will be pretreated and final polished in internal and external water polishing areas.

Figure 4. Environmental Road Design Type 3.
Elevated and Enclosed, Pylon supported Roadway. Surrey Marsh Wetland Protection

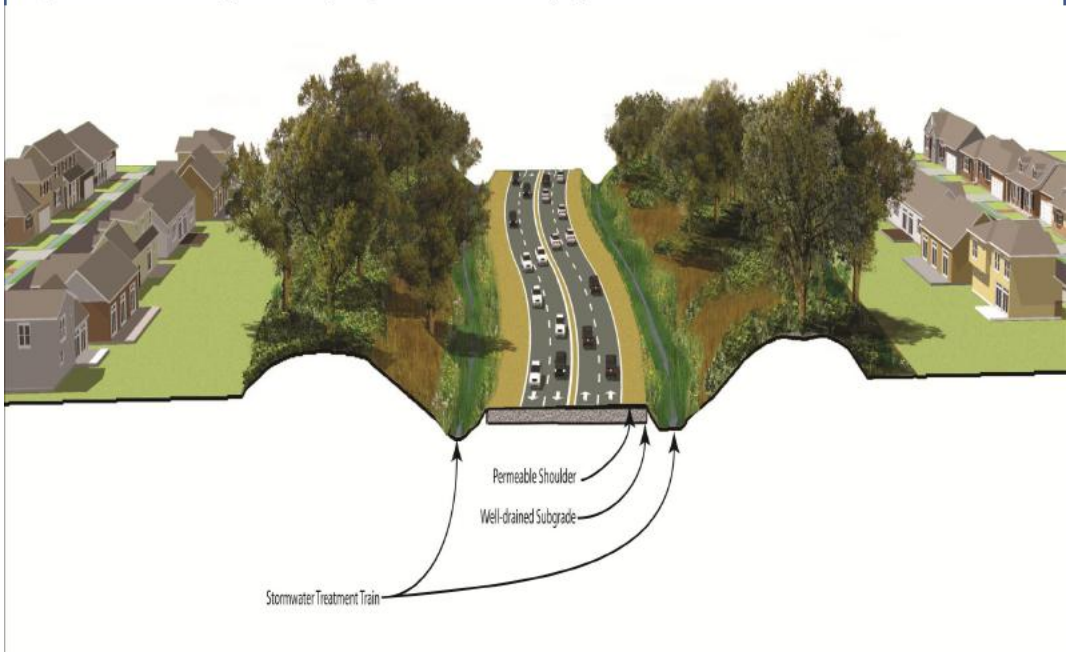
4. **At Grade, with Bioswales and other Environmental Treatments**

   Several sections of the roadway, particularly where a depressed roadway has to come back to ground surface grades and merge at grade with other roadways, will be necessary to include in the plans for the highway. **Figure 5** displays this at grade concept, showing integrated bioswales and other environmental treatments.

5. **Residential Neighborhood Roadway Design**: Depressed and elevated Bermed roadway with storm water pre-treatment features, but much narrowed medians and road-margin water treatment areas to optimize the noise and visual barrier needs. Storm water will be captured, pre- treated, and conveyed to external water polishing areas as depicted in **Figure 6,** which has been drawn as a typical and representative section.

Figure 6. Environmental Roadway Type 5.

Residential Neighborhood Roadway Design
Depressed roadway, Bermed/vegetated for noise/light + other environment treatments



6. **Split Couplets Roadway Sections:** The roadways are at grade, installed in very sensitive manner to not damage trees, wetlands or other environmental features along the routes. They are installed as entranceway features (as in the case of western leg of Route 120) to contribute to the experience of place and simultaneously to protect existing natural resources**. Figure 1A-1D,** shows where in the plan, this split couplet may be considered as an option. No specific illustrations have been developed at this time to depict this road treatment in more detail.
7. **Widening Roadway Sections on Route 120:** This roadway section simply adds additional lanes to this existing arterial, on the existing road/shoulder grade. Also added to these sections are bio-swales and other storm water management features to move these existing arterial roadway sections towards achieving the water quality and other hydrology performance requirements. **Figure 1A, 1B,** shows where in the plan, this road widening of Route 120 may be considered as an option. No specific illustrations have been developed at this time to depict this road treatment in more detail.

The remainder of this section describes the problem and challenges, intended conceptual design solutions, and conceptual outcomes for each section or type of environmental road treatment. Readers are referred back to **Figures 1, 1A, 1B, 1C** and **Figures 2-6**, as applicable to better understand with the help of these illustrations the intent of each type of road segments and cross sections:

I. Prairie Crossing, Almond Marsh Conceptual Solution for Ft 53 Grayslake bypass connection to Routes 45/ 120

Problem Statement:

1. Aerosol, ground water and surface water contamination from salt and other highway contaminants will have a deleterious effects on a, b) nature preserves with wetlands, streams, seeps, fens and springs, and c) lakes and other water bodies.
2. Contaminants (salt and hydrocarbons) mobilized to farm lands, particularly certified organic agriculture lands will cause these lands to a) lose those organic certification affecting both food quality, customer base, b) reduce the productivity of the soils and significantly reduce the economic well being of the farming operations.
3. Proximity of a new roadway to the Liberty Prairie Reserve will disrupt significant investments to legally protect and restore land by public and private parties.
4. Hydrology changes from additional volumes of runoff to surface and ground water resources that feed the Reserve's natural areas will have deleterious effects on survival of rare species of plants and animals, trees, and the stability of shorelines, slopes, etc.
5. Noise impacts from the roadway will affect rare grassland, forest and wetland wildlife in the preserves.

Conceptual Solutions:

Goals:

1. Eliminate aerosol, ground and surface water contamination through a) reduced road footprint and meandering the roadway to eliminate wind tunnel effects and dust and salt entrainment, b) depressing road surface into the shallow ground water table to create a "zone of saturation design" that forces shallow ground water from abutting lands to flow inward toward the road where it can be captured and removed from the sensitive areas for cleansing and release, and c) Asymmetric berming above grade areas along the road to reduce aerosol dispersal of salt and other contaminants.
2. Reduce, capture, and cleanse contaminated storm water so they do not impact agricultural lands.

3. Reduce the road footprint and move the road within a ROW farthest away from the preserve and legally protected nature preserve to avoid direct and indirect impacts.
4. Eliminate direct runoff and subsurface flows toward to preserve.
5. Eliminate noise impacts with depression of the road and Berming.

Conceptual Design:

1) Depress the roadway starting west of Route 137 and create a back (west sloping) draining earth cut through the entire length of the bypass connection that eventually rises to meet grades at Route 45., where the bypass would merge with route 120.
2) The earth cut depth will be defined and set at the elevation necessary to intercept shallow ground water as stated above.
3) Use cut soil materials to create a horizon Berming system that undulates and ties into the elevations and grades along the ROW margins, and undulates to create irregular relief as natural as possible glacial-like landform features such as Eskers, Kames and Moraine features that serve as noise and an additional contamination mobility barriers along the entire route. The Berming can be designed similarly to the tollway's project with The Grove National Historic Landmark noise abatement and habitat restoration project that has been so successful.
4) All surface runoff within the inside of the landform and earth cut drains inward from the top of the landforms features into the roadway system.
5) Ground water emerging in the road cut and the surface runoff is drained with positive grading to the south and west, to wetland biofilter restorations west of Highway 137 where the water is managed prior to release. A second storm water management treatment area may be necessary on the north side of the depressed roadway close to the terminus of the bypass near route 45, but not to the east of route 45 so as to avoid any introduction of water close to Almond marsh.

Benefits of Project:

1. Conceptually, this approach should be able to eliminate nearly 90-100% of the contaminant risk to Almond Marsh and other nature preserves, agricultural operations include not impacting organic certified lands.
2. Conceptually, this approach should eliminate 90-100% of the noise impacts to wildlife in the nature preserves, people in the community.
3. Conceptually, this approach should eliminate adverse hydrological/hydraulic impacts through surface and ground water alterations.

II. Long Grove, Surrey Marsh to Route 22 Sensitive Environmental Settings

Problem Statement:

1. **The road placement in Surrey marsh area is in a location with :**

a. Steeper unstable slopes with housing on the top of the slopes, and picturesque distinguishing oak trees covering grassy parkland like settings on top and along the steep side slopes of the landforms.
b. At the bottom of the steep slopes are marshes with deep very poor peat and muck soils that have been in places found to be as deep as 80 feet.

2. **The road placement north of Surrey marsh to route 22 is in a location with:**
    a. Numerous and extensive mapped higher quality wetlands with muck and peat soils.
    b. Forest preserves, private and public legally protected open space, and one or more Illinois nature preserves are found along the ROW and immediately downstream on Indian Creek tributaries and others.
    c. Federal and State special status plant species are found near the ROW and downstream.
3. **Environmental impacts from direct and indirect changes from the roadway will result from:**
    a. Hydrology, hydraulics changes, including increased storm water volume, rates, flooding, etc Degraded plant diversity in wetland will be further degraded.
    b. Contaminants including but not limited to salt, combustion byproducts, dust and sediments, nitrogen, and a range of heavy metals,
    c. Noise and ambient light, and vibration effects that will impact forest, grassland, wetland, birds and other wildlife in the area.
    d. Stream channel instability from increased erosion of runoff from the highway.
    e. A conventional intersection at Route 22 with a large footprint will impact legally protected public land and downstream nature preserves from the above causes.

Conceptual Solutions:

Goals:

1. Eliminate impacts to slopes, oaks, and slope stability by doing no grading or excavation to create the roadway in Long Grove.
2. Eliminate impacts to wetlands.
3. Eliminate direct and indirect impacts to preserves, rare species, hydrology, light, noise and stream channel instability.
4. Eliminate contaminant effects that will encourage invasive species and further deterioration of the natural resources in these areas.
5. Reduce noise and visual impacts
6. Eliminate conventional interchange at route 22.

Conceptual Design:

1. Place a “covered-bridge 4 lane highway on pylons through sensitive areas to a) minimize footprint of construction impacts.
2. Cover roadway to reduce storm water generation.
3. Place roadway just up from the toe of the slopes to take advantage of stable slope toe environments and to avoid deep pylon construction needs.

4. Enclose the roadway with a modular reinforced concrete “lid” (see West Vail wildlife crossing design) that can be textured on the exterior to hold soil so it can be completely re-vegetated to blend with the slopes and landform features present. Or, cover the roadway with a structural facsimile of a covered bridge.
5. Place soundproof baffling within the “lid” to create a nearly sound intrusion less placement of the road.
6. The use of the “Lid” will completely eliminate storm water generation from this sensitive roadway environment.
7. In locations where the roadway is not enclosed, capture all storm water and direct it away from road and wetlands.
8. Move a potential interchange north of 22, along the north east side of the Kemper Lakes t property and introduce the footprint of the interchange along their extensive parking lots and golf course. Integrate storm water management treatments into this location.

Benefits of Project:

4. Conceptually, this approach should be able to eliminate nearly 90-100% of the contaminant risk to Surrey Marsh and other nature preserves.
5. Conceptually, this approach should eliminate 90-100% of the noise impacts to wildlife in the nature preserves, people in the community.
6. Conceptually, this approach should eliminate adverse hydrological/hydraulic impacts through surface and ground water alterations.
9. Additional pavement from interchange is moved away from sensitive area and footprint replaces existing imperviousness parking lot areas and golf course rough areas.
10. Direct delivery of employees and patrons to Kemper lakes office complex can reduce travel times, and improve re-use potential of this facility.

III. Residential Areas Treatments for Optimizing Environmentally Sensitivity In all other Locations of Highway 53/120

Problem Statement:

1. Hydrology and hydraulic and water quality impacts from highway-related contaminants will occur to streams, springs, wetlands, will cause a serious large scale impacts to natural resources within and abutting the ROW of 53/120.
2. Many legally protected private and public conservation lands are present in, abutting or up and downstream of the ROW that would be directly and/or indirectly impacted by construction, use/operations of the highway over time.
3. Many streams crossed by the ROW will be deleteriously impacted by changes in hydrology, hydraulics, volumes and rates of water generated and released from the highway, stability changes of the bed, bank and channel and the physical changes in the system will contribute to downstream flooding, tree mortality, erosion and sedimentation, and biological impairments.

4. , large acreages of habitat will be impacted by light and noise directly and indirect impacts with and near the ROW and rare woodland, grassland and wetland birds and other wildlife will be deleteriously impacted along the entire ROW where these habitats and species are present.
5. The noise, light, hydrology and air, water and soil contamination, and fragmentation of existing habitats from the highway will preclude for the life of the highway the opportunity to restore and improve habitats found within varying set back distances from the highway depending on the sensitivity of the biological elements on the landscape.
6. Aerosol contamination mobility will affect broad landscapes with deicing materials, combustion byproducts, and other contaminants.

Conceptual Design Solutions and Goals:

1. Narrow and down-size footprint of construction limits and paved imperviousness surface everywhere. For the entire roadway reach, the construction limits should be minimized by insisting on construction access through the central median of the future roadway and a maximum of two 15 foot access lanes along the outside perimeters of the actual future paved road surface locations. All other areas of the ROW shall be left untouched by the construction activities. The median shall be a generous width of 50-100 feet or more.
2. Create meandering paved surface spanning a generous but variable-sized median and create variability within the ROW for placement of opposing lanes and the median to avoid and minimize impacts to existing natural resources, poor soils, and hydrological features including recharge locations.
3. Use existing avoided natural features and newly installed/restored natural features along the meandering route of the opposing lanes and variable width median, to create changing driver sight lines,"rooms of view" and driver attention and aesthetics, to slow vehicle average speeds down to reduce aerosol contaminant mobility, wildlife mortality impacts from vehicle collisions, and to reduce radius of paved surfaces, stacking lane length needs, and off ramp stacking distances.
4. Vary the road surface elevation and placement vertically and horizontally and counter-point both the road alignment in vertical and horizontal space with the median and ROW remainder lands to the outside of the paved areas by varying their width, orientation to the roadway, elevation on approaching the roadway, and angularity and orientation with the roadway lanes.
5. On the ROW and abutting the roadway, re-link and create connections of forest, savanna, wetlands, through restoration to provide for increased, improved, and extensions of existing habitat, ecosystems in private and public conservation and habitat lands.
6. Identify storm water runoff management areas throughout the ROW and future median area to take advantage of existing drained hydric soils and adjacent uplands that can be restored to storm water treatment train landscapes for management storm of water as dispersed features of a restored and naturalized landscape along the entire ROW. Merge these features with settings to be restored outside the ROW.
7. In locations where receiving water bodies (streams, wetlands, lakes, rivers, springs, etc) would be impacted by contaminated storm water (surface, groundwater or aerosol sources generated

from the highway), create the same "zone of saturation" depressed roadway designs (see Prairie Crossing, Almond Marsh conceptual design solutions as above) with the same horizon Berming to contain surface, ground and aerosol waters within the ROW.

8. Direct all storm water and intercepted ground water in all reaches of the highway and direct them inward to a depressed median storm water treatment train that is not ditch like. This Storm water treatment train should be a complex, aesthetic, meandering multiple-flow path, system of restored upland grassland, wetland, extensive peat (salvaged muck and peat from any wetlands impacted) blankets, and with extensive wood chip blankets of 3-5 feet thick that are replenished on 5 year rotations in key areas that will be used for heavy metal adsorption. At the inflow end of each mulch blanket install in-line modular peat filters that would be replaceable on a 10 year rotation to remove captured heavy metals for disposal in landfills. These modular filters are best located in conjunction with water draining from zones of acceleration and de-acceleration such as at intersections, entrance/exit ramps.
9. Create wildlife crossings over the roadway and beneath the roadway to cater to more mobile wider ranging wildlife that freely move overland (e.g. deer, fox, coyote, bobcat, wolf, etc) and for those species that need to follow drainage ways and streams and wetlands (e.g. amphibians, reptiles, small mammals, stream fishes, macro-invertebrates, etc). Coordinate the placement of such structures (modeled after the West Vail, CO ARC wildlife crossing design) where additional conservation and recreational connections can be made across the landscape.
10. Discourage the use of noise-barrier walls and favor the use of "living barriers" on earthen features or barrier walls with "plantable" soil and dense and continuous vegetation containing cells traversing the vertical structure of any barrier walls such that the driving aesthetic is the vegetation system rather than the face of a noise-wall.
11. Create along the entire route locations where the median storm water treatment systems are diverted to restored wetland landscapes to elsewhere within the ROW, and then to "storm water management and conservation properties" where final polishing and holding of the water facilitates evaporative and infiltrative losses and not direct runoff or entry into streams and existing wetlands or other receiving water bodies.
12. Protect agricultural lands along and in some locations within the ROW so that this land use is part of the experience of travel along this roadway, reflecting and affirming the agricultural heritage of Lake County. Grow non-consumable crops that can contribute to water cleansing, yet are aesthetically appealing and not distracting for the driver experience. Consider growing native conservation biomass crops (see The Earth Partners web site) that can be harvested on a rotation and used for local energy production.
13. Integrate recreational/greenway/bike trails within the restored landscape features, vegetated horizon Berming, storm water management and conservation properties, along the entire roadway and allow for crossings of trails/greenways in locations to support and extend and further the benefits of additional connections for the pedestrian, equestrian and bike routes in Lake County.
14. Do not materially truncate watershed areas in surface or ground water recharge zones that support base flow dependant streams, springs, fens and other ground water dependant natural

resources features anywhere along the route. Where this is unavoidable, deliver clean infiltrated water to restored landscapes located upstream/up gradient of the dependant receiving water bodies.

15. Use FAA wildlife hazard fencing to prevent wildlife access and vehicle collision risk on all roadway locations. The keyed in fencing can be integrated with Berming and vegetation so that the fencing is not visible. Follow FAA fencing maintenance procedures to ensure the fencing remains functional.
16. In all ROW lands and abutting lands outside the ROW, "re-grow" soil organic carbon levels through restoration and vegetation system plantings and management to offset the Green House Gas emissions embedded within the manufacturing process of the pavement, gravel, earthmoving petroleum uses, and other materials used in road. Be the first climate friendly roadway on earth that has offset its total embedded GHG emissions.

Benefits of Project:

1. Conceptually, this approach should be able to eliminate a very large percentage of the contaminant risk to the landscape, legally protected conservation lands including nature preserves.
2. Conceptually, this approach should eliminate noise impacts to wildlife in the nature preserves, people in the community near and at a distance from the roadway.
3. Conceptually, this approach should eliminate adverse hydrological/hydraulic impacts through surface and ground water alterations.
4. Conceptually, this approach should create more wildlife connections, recreational connections than presently exist on the landscape and could create a net benefit.

IV. Storm water management Polishing Area (SMPA)

Figures 1A, 1B, 1C and 1D display some conceptual locations for external polishing of storm water adjacent to the Route 53/120 Rights-of-ways. In the ROW, Storm water Treatment Trains (STT) will be designed to a) pre-treat all storm water by removal of suspended solids and adsorbed contaminants, through long residence time and long flow path length swales, upland grassed landscapes, and redundant restored landscape wetland features of varying depths through which the storm water is passed, and subjected to aerobic and anaerobic treatment to strip and hold or metabolizes and dissipate (e.g. nitrogen, oil and grease, and many combustion byproducts) chemical constituents.

The last STT elements are the external Storm water management polishing areas (SMPA) which are designed to create final polishing for the water prior to release to receiving water bodies. In association with these SMPA's we anticipate some very specialized additional polishing strategies being deployed to ensure the water quality meets the performance requirements established in this program. For example, for any sensitive receiving water bodies, we envision

additional treatments to include reverse osmosis or other membrane diffusion technologies to remove salts, and other dissolved solids. In other locations with downstream lakes as receiving water bodies, the use of polyacrilimiad resins, alum and other strategies for removal of dissolved phosphorus is also envisioned to be necessary.

The exact polishing treatment technologies, and their sizing, placement and operational needs will be determined during a later phase of highway design. Additional SMPA's are acknowledged to be necessary along the Route 53/120 ROW's and will be placed in future phases of road design process. The placement will prioritize existing drained hydric soils and surrounding restorable upland settings for these SMPA's, but in some locations, such as in the north and south locations along the Surrey Marsh elevated and enclosed roadway treatment, it is likely that excavations of existing prior wetland fill areas will be required entirely, or in part, to create the SMPA's, to accomplish the water quality performance requirements.

V. Conservation, Land Protection and Land Restoration Treatment Area

Figures 1A, 1B, 1C and 1D displays some conceptual locations for land protection, restoration and conservation, including improved mobility for wildlife and trail corridors for humans.

Four main locations along the route 53/120 ROW are displayed on the above figures for expanded land protection, land restoration as a part of an expanded conservation program associated with the roadway. These areas include:

1. **Almond Marsh Environs:**
2. **Northbrook Sports Club Environs:**
3. **Indian Creek Marsh Environs:**
4. **Surrey Marsh Environs:**

In each of these locations, restoration, protection and perpetual management, monitoring and stewardship plans will be prepared to a) restore and enhance the existing upland buffers such as by removal of invasive buckthorn and by restoration of oak savanna systems present, and b) to restore and enhance existing wetlands through invasive plant management, restoration of water levels and hydrological linkages (e.g. such as at Almond Marsh where tile failures are increasing the flood levels in the North Almond marsh basin, and at Arbor vista, to reconnect tiles that are failing at Route 45), and c) by restoring areas of hydric soils that are now dewatered by tiles and/or ditches.

At this time, it is acknowledged by this document, that only the larger Conservation, Land Protection and Land Restoration Treatment Areas and SMPA's have been identified in some

areas of the route 53/120 corridor and that additional areas of each type are envisioned to be necessary to accomplish the goals, performance outcomes, and to reconnect landscapes for wildlife, habitat, human recreation, and re-connections of hydrology on the landscape.

Land protect areas include parcel located generally depicted in **Figures 1A, 1B, 1C and 1D**. These include key parcels for external storm water management polishing areas (SMPA's), parcels that contain important additions to the existing protected conservation lands, and parcels where wetland and other mitigation and compensation needs for the project would be focused.

In the **Almond Marsh environs**, with exception of several parcels along route 120 where protection would be a benefit, all other properties in the restoration, management and enhancement areas depicted on Figures 1A-1D are already under land protection programs. The primary focus will be in the restoration, enhancement, perpetual management and monitoring of conditions in the polygon depicted on these figures. A trail corridor as a pedestrian underpass under the new road at Almond Road is envisioned to be included in this package to connect conservation lands north of route 120 and south of route 120 along or abutting the Almond road corridor.

In the Northbrook Sports Club Environs, this includes the purchase of the remaining existing Sag wetland bank and the credits yielded by the bank, fee title purchase of the land underlying the bank and other lands owned by the Northbrook sports club and Grayslake Gelatin company farm. This program will restore large remaining drained hydric soil units, protect and restore the oak savanna along route 120, and provide perpetual stewardship, land management and monitoring for the area depicted in the mapped polygon.

The **Indian creek marsh environ** is proposed to be bridged by an elevated causeway road treatment. The mapped polygon includes this treatment, the restoration and maintenance and perpetual stewardship and monitoring of the marsh, upland buffers to the marsh and storm water treatment management areas that would be established on both ends of the elevated causeway.

The Surrey **Marsh Environs** are in serious state of ecological decline. : The polygon area depicted would be restored, some existing moderate quality marsh area would be enhanced, and a perpetual stewardship and monitoring program would be established and deployed to ensure restoration success.

At this time, it is acknowledged by this document, that only the larger Conservation, Land Protection and Land Restoration Treatment Areas and SMPA's have been identified in some areas of the route 53/120 corridor and that additional areas of each type are envisioned to be

necessary to accomplish the goals, performance outcomes, and to reconnect landscapes for wildlife, habitat, human recreation, and re-connections of hydrology on the landscape.

VI. Conservation Finance, Perpetual funding for stewardship and ecological Monitoring

Perpetual stewardship and monitoring, and the assurances required for land protection and restoration will be discussed by the Environment & Sustainability Working Group during the March 19 meeting. Options to successfully accomplish the vision and performance requirement of this program could include the following:

Conservation financing

i. Land stewardship fund
ii. Monitoring fund
iii. Unanticipated consequences fund