

runoff associated with new pavement area. Design events used to calculate runoff volume should be based upon controlling requirements considering both Ohio's general storm water permit and the need to prevent violations of Ohio Water Quality Standards.

3. The PDP should consider potential long-term treatment needs for storm water in selecting design alternatives for the drainage of the Innerbelt facility. Some drainage options may limit opportunities for providing additional treatment for storm water runoff, should a higher level of treatment be determined as necessary in the future.
4. The PDP is encouraged to consider the specific characteristics of Innerbelt runoff as well as proposed passive best management practices in evaluation of alternative storm water management strategies.
5. It is recommended that the options evaluated for treatment of storm water include, but not be limited to the following:
 - a) Detention and/or retention facilities above or below grade utilizing current or future green space near the Lakefront.
 - b) Tie-in of all or part of the runoff to the improved combined sewer storage facilities which being designed by the Northeast Ohio Regional Sewer District.
6. The management and treatment of runoff should be considered as an integral part of preliminary engineering for any new or reconstructed bridges crossing the Cuyahoga River. Containment of hazardous material spill should also be assessed.
7. For any proposed direct discharges of storm water to receiving waters or to separate storm sewer systems that subsequently discharge to receiving waters, preliminary engineering should begin planning for monitoring chambers that will facilitate the monitoring of highway runoff. Planning for any such discharge points should also consider provisions to assist in containing hazardous material spills.
8. ODOT is encourage to provide for at least two review points for interaction with the TRANSWAC Innerbelt work group prior to the completion of the drafts for the environmental documents for the project.
9. If the PDP concludes that the treatment of storm water runoff called for by permit or by the need to prevent a violation of water quality standards is not feasible, such a finding should be supported by an engineering cost feasibility study demonstrating that treatment is not feasible. A format for an engineering cost feasibility study is provided at the above noted ftp site.

10. As highway storm water runoff may affect water quality at various parks including portions of the Cleveland Lakefront State Park, the PDP should consider any applicable requirement of the Federal Highway Administration's Section 4(f) policy. This policy may suggest the need for specific studies or impose certain requirements on the management of storm water.
11. As key stakeholders, Ohio EPA and ODNR should be encouraged to fully engage in the review of PDP step reports, as well as project environmental documents to evaluate whether or not proposed storm water management practices are protective of receiving water resources.

Attachment A: Review of Water Quality Environmental Impact Concerns

The purpose of this document is to review the data developed by the Innerbelt work group, focusing on the question of whether the storm water runoff from the current and proposed Innerbelt facility has a reasonable potential to cause harm to the Cuyahoga River and the lakefront area of Lake Erie. This review was not meant to be exhaustive nor intended to fully evaluate the impact of Innerbelt storm water runoff. Rather, the purpose of this document is to aid in making a determination of the need for a more detailed analysis of likely water quality impacts as a part of the ODOT Project Development Process.

Four topics are considered in this document:

1. The summary findings of a literature review undertaken by the United States Geological Survey for the Federal Highway Administration, documenting the impacts of highway runoff on the ecological health of aquatic communities.
2. Summarization of the findings of the Cuyahoga River RAP Stage 1 report concerning local water resource impairments. The particular focus of this review is on the findings related to eutrophication and impairments to the benthic community.
3. Summarization of the Lower Cuyahoga TMDL, which sets targets for the Lower Cuyahoga for total phosphorus levels.
4. Comparison of published values for pollutant in highway runoff quality with Ohio water quality criteria.

1. Literature Review of Water Quality Impacts of Highway Runoff

A comprehensive literature review of the impacts of highway runoff was conducted by the USGS for the U.S. Department of Transportation. The report, "Assessing Biological Effects from Highway-Runoff Constituents," was released in 1999. (Open-File Report 99-240). This report reviews 44 articles and published papers incorporating fieldwork from 1970 through 1996. The last paragraph of the Summary of this document is provided below.

"A review of 44 reports on the biological effects of highway runoff on local ecosystems reveals several information gaps. The use of different methods from study to study and a general lack of sufficient documentation preclude making quantitative comparisons among different studies using the existing data. Qualitatively, the literature indicates that constituents from highway runoff and from highway-runoff sediments deposited in receiving waters near the highway are found in the tissues of aquatic biota, and that these sources may affect the diversity and productivity of biological communities, even though bioassays would suggest that highway runoff is not often toxic to aquatic biota. To provide the quantitative information needed, it is necessary to obtain information using standard methods, and to document study results in a manner that will be useful for a national or regional synthesis."

2. Cuyahoga River Remedial Action Plan Stage 1 Report

The Cuyahoga River Remedial Action Plan in its Stage 1 report concluded that relative to the impairment of Eutrophication the Navigation Channel of the Cuyahoga River is

"Probably Impaired" and that the near shore area of Lake Erie is "Impaired." The Lower Cuyahoga is listed as "Probably Impaired" due to a lack of an adequate database on which to base a more definitive conclusion. Additionally, the Stage 1 report concluded that the benthic community is "Possibly Impaired" in the Navigation Channel and "Impaired" in the near shore area of Lake Erie. The "Possibly Impaired" determination reflects that existing studies note problems: however, at that time there were no clear standards applicable to the navigation channel on which to base a more definitive determination. As a part of the procedure of making a determination of impairment for the benthic community, the Stage 1 process prepared separate technical reports on the benthic communities in the Cuyahoga River and in the Cleveland Harbor and near shore areas. The Cleveland Harbor and near shore benthic reports reference several studies conducted during the period 1976 through 1989.

3. Ohio EPA TMDL Report for the Lower Cuyahoga

Ohio EPA's September 2003 Total Maximum Daily Load Report found that the lower 7.2 miles of the Cuyahoga River are in non-attainment of water quality standards. Causes of impairment are listed as organic enrichment, habitat alteration, priority pollutant organics, metals, other organics, and oil and grease. The report concluded that "Phosphorus is the limiting nutrient in the Cuyahoga River system." The report sets a TMDL target at 0.12mg/L and calls for a 48% reduction of current phosphorus loading levels for non-point runoff sources. In appendix L the report notes that Cuyahoga River is targeted as a significant contributor to the enrichment conditions of nearshore of Lake Erie.

4. Highway Runoff Pollutant Values Compared to Ohio Water Quality Criteria

Ohio EPA sets water quality criteria for designated waters of the state. For example, the agency has established aquatic life uses for the Lower Cuyahoga river and for Lake Erie. Numerical criteria are found in ORC 3745-1-07. One example of criteria are the numeric allowable limits for concentrations of pollutants within the mixing zones created by a direct discharge. These Inside Mixing Zone Maximum (IMZM) criteria were developed to prevent acute lethality to aquatic life, and accordingly they are applicable for any individual sample rather than for an average of samples. The Outside Mixing Zone Maximum (OMZM) criteria are similarly applicable to individual samples. Compliance with the OMZM criteria involves determining the pollutant concentrations of the available dilution water and the amount of mixing which occurs. For the purpose of this analysis, the review was limited to heavy metals commonly found in highway runoff. Exhibit 1 is a table comparing literature values for highway runoff pollutant levels with Ohio EPA established criteria for IMZMs and OMZMs. Criteria are established for both total metal concentrations and dissolved metal concentrations. Comparison of these published values with Ohio EPA criteria suggests that untreated Innerbelt runoff, to the extent that is similar in reported literature pollutant values, may result in violations of water quality criteria if discharged untreated to Lake Erie or the Cuyahoga River.

TOTAL RECOVERABLE METALS CRITERIA

Hardness	Copper		Lead		Zinc		Cadmium	
	100 mg/L hardness IMZM	OMZM	100 mg/L hardness IMZM	OMZM	100 mg/L hardness IMZM	OMZM	100 mg/L hardness IMZM	OMZM
Ohio EPA water quality criteria*								
Total recoverable concentrations	28	14	240	120	240	120	9	4.5
mg/L	Micrograms/L		Micrograms/L		Micrograms/L		Micrograms/L	
For the parameters noted the Ohio criteria values are the same for the Ship Channel and Lake Erie								
Sansalone et.al. (Feb. 1997)	5 events							
Cincinnati								
Event mean Conc.	43	x	31		459	x	5	x
Min								
Max	325	x	97		15,244	x	11	x
Three sites								
Milwaukee 1970s								
Average Total Event Mean Conc.	75	x	* Note 1		336	x	11	x
Min								
Max	155	x	* Note 1		465	x	29	x
* Note 1— High values due to lead in gas (738 to 1457)								
FHWA-PD-96-032 (June 1996) & FHWA-RD-88-006 (April 1990)	Urban highway sites with Average Daily Traffic Values over 30,000							
Event Median Concentrations	54	x	400	x	329	x		
median site								
highest 10%	119	x	1,562	x	564	x		
Lowest 10%	25	x	102		192	x		
IMZM — Inside Mixing Zone Maximum criteria								
OMZM — Outside Mixing Zone Maximum criteria								

* Water quality criteria values are determined by an equation in which hardness is an independent variable. Higher criteria would be higher for elevated hardness values. Lower values of hardness lessen allowable metal concentrations. For example a hardness value of 50 mg/l might decrease allowable values in the above table by a factor in the range of 2.

Format Notes

"x" denotes potential problem with Outside Mixing Zone Maximum criteria
 Bolded denotes that values are greater than the IMZM criteria

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Exhibit 1 (continued)

DISSOLVED METALS CRITERIA

Hardness	Copper		Lead		Zinc		Cadmium	
	100 mg/L hardness IMZM	OMZM	100 mg/L hardness IMZM	OMZM	100 mg/L hardness IMZM	OMZM	100 mg/L hardness IMZM	OMZM
Ohio EPA water quality criteria*								
Dissolved	27	13	190	97	230	120	8.5	4.3
mg/L	Micrograms/L		Micrograms/L		Micrograms/L		Micrograms/L	
For the parameters noted the criteria values are the same for the Ship Channel and Lake Erie								
Sansalone et.al.	5 events							
Cincinnati								
Dissolved fraction translator (mean from 4 events)	0.524		0.279		0.771		0.662	
Event mean Conc.								
Adjusted**	23	x	9		354	x	3	
Min								
Max	170	x	27		11753	x	7	x
Adjusted**								
FHWA-PD-96-032 (June 1996) & FHWA-RD-88-006 (April 1990)	Urban highway sites with Average Daily Traffic Values over 30,000							
Dissolved fraction translator	0.4		0.1		0.4			
median site	22	x	40		132	x		
Adjusted**	48	x	156	x	226	x		
Adjusted**	10		10		77			
Lowest 10%								

NOTES

IMZM — Inside Mixing Zone Maximum criteria
 OMZM — Outside Mixing Zone Maximum criteria

* Water quality criteria values are determined by an equation in which hardness is an independent variable. Higher criteria would be higher for elevated hardness values. Lower values of hardness lessen allowable metal concentrations. For example a hardness value of 50 mg/l might decrease allowable values in the above table by a factor in the range of 2.

** Adjusted values were obtained by multiplying the total metals data by fractional values that the report suggests as representative of soluble portion of the total metals concentration. The fractional value is listed in the table as the "dissolved fraction translator".

Format Notes

"x" denotes potential problem with Outside Mixing Zone Maximum criteria
 Bolded denotes that values are greater than the IMZM criteria

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March 5, 2007

Ohio Department of Transportation
5500 Transportation Blvd.
Garfield Heights, Ohio 44125

Att: Cleveland Innerbelt Project Manager

The substance of this comment is to address ideas around the handling of stormwater runoff from the proposed Innerbelt facility. In summary, I encourage ODOT to vigorously assess the potential impacts of stormwater runoff on the water resources that will receive these discharges as an element of the Draft Environmental Impact Statement. Further, I urge ODOT to fully weigh alternatives for treating stormwater runoff in the draft EIS document. This should include assessment of potential alternative treatment technology as well as an assessment of the environmental benefits of providing treatment of all of the runoff that emanates from the Innerbelt facility. These recommendations are amplified by the attached analysis document.

The substance of my comments are structured around the response that ODOT provided for the Findings and Recommendations report dated March 20, 2006 prepared by the Transwac Work group and subsequently submitted to ODOT on behalf of NOACA. As elements of this comment letter I incorporate both the original Transwac Findings and Recommendation report and the ODOT response as attachments. I believe that it is critical that they be made part of the public record of the Draft Environmental Impact Statement. It is my intent that the recommendations of the analysis be considered as comments and suggested direction to ODOT, and as applicable FHWA, by the undersigned.

While providing comments, I am also requesting an extension of the period for inclusion of public comments for incorporation into the draft EIS for at least an additional 30 days. In support of this request I note that a critical ODOT Innerbelt document, the Level 1 Ecological Survey Report, is just now in the process of being released to the public. To my knowledge it is not yet available on the ODOT Innerbelt internet site. Logically, scoping of the draft EIS would be greatly enhanced by the benefit of public comment on this ecological report which was developed to help inform the EIS scoping process. Additionally, the requested extension of public comment period would also allow for the NOACA Transwac subcommittee to meet to collectively evaluate and provide comment to ODOT.

Finally, an extension of the comment period would allow the Lead Agencies in preparation of the EIS to identify appropriate cooperating and participating agencies as in compliance with Sec. 6002 of SafetyLU. To my knowledge these invitations have not yet been extended. Additional time would allow agencies that are identified, either as

cooperating or participating agencies, to add comments to the record for use in preparation of the draft environmental impact statement.

Due to storm conditions NOACA was forced to cancel a recently scheduled Transwac subcommittee meeting which was anticipated to have worked to develop comments to ODOT. Further, NOACA has very recently been advised by ODOT that it is not anticipate granting an extension of the comment period. Facing the prospect that the comment deadline might not be extended NOACA staff advised member of the Transwac committee to submit individual comments. At this late juncture this situation results in the need to submit comments as an individual citizen.

Sincerely,

Lester Stumpe

Copies:

Erwin J. Odeal, Northeast Ohio Regional Sewer District
Craig Hebebrand, ODOT District 12
Dave Lastovka, ODOT District 12
Mike Armstrong, FHWA
David Snyder, FHWA
Howard Maier, Northeast Ohio Area Wide Coordination Agency

Comments and Recommended Direction Pertaining to the Assessment of Innerbelt Environmental Impacts and Design of Innerbelt Stormwater Facilities

(Note the following comments are formatted to be consistent with Transwac Subcommittee Finds and Recommendations report dated 3/20/06 (Attachment A) and ODOT's response dated 1/12/07 (Attachment B))

1) Transwac's first recommendation was to request ODOT to investigate the specific likely environmental impacts of Innerbelt runoff. (Transwac made this recommendation after a literature review, which concluded that there is the potential for Innerbelt runoff to cause violations of water quality standards. (An ftp site was established for the Transwac Subcommittee, and is available to ODOT (a subcommittee member), which contains over 40 pertinent document addressing water quality impacts and context sensitive transportation planning. An index of documents at this ftp site is included as Attachment C)

ODOT's response does not dispute the findings of the Transwac work group's report showing the potential harm to aquatic resources and the possible violations of water quality standards. Rather, the focus of ODOT's response appears to derive from current regulatory requirements as established by Ohio's General Construction permit. However, having a limited focus on regulatory requirements runs the risk of producing poor public policy. Just as regulatory requirements are not the driving force for many of the design decisions for a reconstructed Innerbelt, they should not be the only consideration in treatment of stormwater runoff. It should be taken into consideration that the planning and design work done as a part of this project will fix drainage patterns that will likely have significant consequences for lakefront water quality for the next 100 years. Additionally, it is to be noted that the supplemental material supporting the project's Purpose and Need Statement included the goal of protecting and enhancing the natural environment.

ODOT suggests that its direction on stormwater treatment is largely set by ODOT policy related to requirements of Ohio's General Construction permit. However, this permit was not designed for, and can not be expected to provide, adequate guidance for long-range planning processes involving protection of water quality. For example, by permit terms, Storm Water Pollution Prevention Plans (SWP3s) identifying selected BMPs do not need to be developed for potential review by Ohio EPA until 21 days prior to commencing construction. Further, although the general Construction Permit contains provisions affirming the need for post-construction discharges to comply with water quality standards and includes a provision for reopening a permit on the basis of evidence indicating potential impacts on water quality, reopening is not a common practice. Provided that a Storm Water Pollution Prevention Plan (SWP3) has been prepared, there is the presumption that water quality standards will be protected. Thus any action pertaining to a post-construction discharge would only likely occur after construction of the project and subsequent monitoring which demonstrated a violation. While this

approach may be reasonable as a regulatory policy, it does not seem appropriate as guidance for the public's billion dollar investment in Innerbelt reconstruction.

The Plan Development Process (PDP) and the National Environmental Policy Act (NEPA) procedures are the appropriate forums for deliberative processes to consider the long-term view of proper management of stormwater discharges to high value urban water resources. But these processes must be informed with adequate data. In particular Transwac encouraged an assessment of the specific potential impacts of Innerbelt runoff on the Cuyahoga and Lake Erie.

There is some uncertainty regarding ODOT's written response that "in summary the PDP involves a considerable amount of documentation of water quality and aquatic ecological impacts." Most recently, ODOT has suggested that these issues would be addressed in the Ecological Survey Report. That report dated 2/16/2007 and received by the Transwac work group 2/28/07 does contain a discussion of the lower Cuyahoga and Ship Channel and includes statements about impact. A preliminary review of the report identifies two notable points. First, the report does not provide any substantive discussion of the aquatic resources or impacts to the near shore waters of Lake Erie. Second, the report does not address the concerns raised by the Transwac report, particularly that runoff discharges have the potential to be responsible for violations of Ohio's water quality standards. It is recommended that the Ecological Survey Report be revised to include the two noted deficiencies. (Note that other comments may be generated after substantive review of the document.) Further, these issues should be addressed in the draft Environmental Impact statement.

The point of the ODOT PDP process is to incrementally develop information in early steps to help define the study needs of successive steps. The environmental impacts of stormwater were raised as an issue very early in the process and reiterated at the end of Step 4 in the PDP process. Along the way ODOT has been encouraged to include environmental work to evaluate the specific impact of stormwater runoff in the study scope for the Step 5 process. Due to lack of preliminary information on the potential impact of discharges on Lakefront water quality future planning steps run the risk of being less well informed.

In summary there remains a strong need for ODOT to investigate the specific likely environmental impacts of Innerbelt runoff on the specific receiving water resources and in particularly near-shore areas of Lake Erie. Further, if ODOT moves aggressively, there is time to inform the decision making process. ODOT should engage Transwac and pertinent stakeholder agencies in transparent deliberations on this issue. As a first step ODOT is encouraged to make available to the Transwac committee the list of intended agency reviewers to allow Transwac to provide information to and engage in conversation with these agencies on the issues of environmental assessment and stormwater runoff impacts.

2) Transwac's second recommendation was for ODOT to consider treatment of all of the runoff from the Innerbelt facility, to avoid environmental harm, and to assure compliance with water quality standards.

ODOT's response states that it will consider providing for BMP treatment for 100% of the runoff from the Innerbelt facility. This is a positive step. However, the treatment of 100% of the runoff is not sufficient if the end result does not provide the level of treatment that is required to avoid harm to water resources, and assure compliance with water quality standards and other regulatory requirements. ODOT's other responses suggest that they will make BMP choices from a limited menu. This limited approach raises the issue of the adequacy of the options that will be evaluated.

ODOT suggests that it does not have a regulatory requirement to provide treatment for all of the runoff from the Innerbelt. This may be true. Nevertheless, ODOT has a responsibility to consider whether a strong environmental case can be made for providing a high level of treatment for all of the runoff as a part of its PDP process and the NEPA environmental review process. Engineering experience suggests that providing for full treatment of the runoff at the time of complete reconstruction will be less costly than trying to design for retrofit treatment later.

ODOT is encouraged to take a broader view of its responsibilities in the PDP in order to develop solutions that seek the highest value for the citizens of the state regardless of permit requirements. For example, the state of Washington has a developed guidance on when a highway reconstruction project is substantial enough to warrant provision of treatment of all of the runoff from a facility. (Reference: Chapter 5, Washington State, Highway Runoff Manual M 31-16)

3) The third Transwac request was that ODOT consider potential future long-term needs for stormwater treatment in the selection of designs for Innerbelt drainage.

In response, ODOT states that it cannot determine what future treatment levels will be required. One of the purposes of the ODOT PDP, the NEPA process, and the Transwac review process is to encourage long term planning that necessarily weighs uncertain outcomes. It would be truly unfortunate if, for lack of consideration of the potential future treatment needs, ODOT designed a drainage system that would work against future potential treatment options. In considering drainage systems ODOT should consider the potential future long-term needs for stormwater treatment.

Additionally, the response errs in assuming that the project treatment requirements it sites in its response are only controlled by policies developed to in response to Ohio's General Construction permit. Further, while it is appropriate for ODOT to consider the most current EPA policy at the time of the final design, certain options may have closed for lack of identification of identification of needs at an earlier point. ODOT should reconsider its position and undertake a more proactive analysis.

4) The fourth Transwac comment was intended to encourage consideration of specific characteristics of Innerbelt runoff in selection of proposed treatment practices.

ODOT states that it believes that the Innerbelt runoff is typical of urban runoff. In contrast, the Transwac literature review suggests that runoff from highways with high traffic counts has a higher concentration of certain pollutants when compared with typical urban runoff. (See Exhibit 1 of Attachment A of the Transwac report.) If ODOT has different data / information suggesting otherwise it should provide the data and discuss its conclusions.

ODOT provides insightful information in noting that the shoulders for the new facility will have a width that facilitates shoulder sweeping. If ODOT is suggesting that shoulder sweeping is an important and effective strategy in combination with other BMPs, then it should develop and present a reasoned sweeping routine with consideration for the range of weather conditions that will be experienced by the Innerbelt facility. Based upon this intended routine, ODOT should estimate the level of pollution reduction that it hopes to achieve.

The expected quality of Innerbelt runoff and in particular metals concentrations should be described and compared to Ohio Water Quality Standards in the Draft Environmental Impact Statement.

5) Transwac's fifth recommendation was to suggest two options for treatment that relate to the unique opportunities attendant with the project site. These including integrating treatment with green space along the lakeshore and connecting to NEORS facilities.

ODOT's response is twofold. Earlier in the response letter and here again, ODOT suggested that a decision has been made to pursue a stormwater separation strategy. It seems inappropriate that ODOT would announce a decision to pursue a stormwater separation strategy without providing an engineering analysis to show the value of the option, and without soliciting public input on this decision through the PDP process and in the project's environmental documents. Again, it is noted that Transwac has made a recommendation that the drainage system should be designed with consideration for enhanced future treatment options. ODOT should consider Transwac's suggestions for stormwater treatment as a part of the draft Environmental Impact Statement document.

ODOT's letter suggests that removing stormwater will result in lower pollution loads to the receiving water as opposed to discharging to the combined sewer system. Yet ODOT does not provide justification or reference to a study to support this claim. In certain cases, removal of contaminated stormwater from combined sewer system may lead to higher pollutant loadings. Given the Transwac demonstrated potential for high metals concentrations in Innerbelt runoff, this possibility requires close examination. The calculation to determine which strategy yields the lowest pollutant loads is dependent upon the level of treatment that is provided for the pollutants of concern, before and after