



# OHIO DEPARTMENT OF TRANSPORTATION

CENTRAL OFFICE • 1980 WEST BROAD STREET • COLUMBUS, OH 43223

JOHN KASICH, GOVERNOR • JERRY WRAY, DIRECTOR

Date: January 16, 2015

To: All Current Holders of the Location and Design Manual, Volume 2

Re: Location and Design Manual, Volume Two Revisions

Transmitted herewith are revisions to the Location and Design Manual, Volume 2.  
The following revisions have been made:

- Revisions / Additions in **Red**
- Section 1002.1 – Additional guidance/requirements allowing a single pipe material
- Section 1002.3.7 – Added SS833
- Section 1005 – Removed requirement for ODOT to secure a floodplain permit, Added guidance regarding Flood Hazard Mapping and the ODOT Self-Permit Process
- Section 1009.2.1 – Removed guidance regarding specifying a pipe material for 6" underdrains
- Table 1104-1 – Removed 33" size
- Section 1105.2.2 – Removed guidance regarding burying replacement concrete box culverts
- Section 1117.2.2 – Vegetated Biofilter revisions
- Figure 1117-4 Vegetated Ditch Example – Removed
- Appendix A – Added forms LD-50; No-Rise Certification and LD-51; Floodplain Letter of Compliance Template
- Sample Plan Note D112; Item 611-Conduit Bored or Jacked – Removed 0.5" reference
- Sample Plan Note D121; Item Special-Pipe Cleanout – Added 3 pay items

The online revisions of the Location and Design Manual, Volume 2 can be found at <http://www.dot.state.oh.us/Divisions/Engineering/Hydraulics/Pages/default.aspx> in PDF format. Technical questions or recommended changes should be directed to Jeff Syar (614) 275-1373 or Matt Cozzoli (614) 466-3152.

Respectfully,

A handwritten signature in black ink, appearing to read 'J Syar'.

Jeff Syar, P.E.  
Office Administrator  
Office of Hydraulic Engineering

# Odor Location And Design Manual Volume

**Joan Ramon Casas, Dan M.  
Frangopol, Jose Turmo**



## **Odot Location And Design Manual Volume :**

**Proceedings of the Forty-Fifth Annual Ohio Transportation Engineering Conference** ,1993-07 *Improved Work Zone Design Guidelines and Enhanced Model of Travel Delays in Work Zones* Helmut T. Zwahlen,2006 The project focuses on two major issues the improvement of current work zone design practices and an analysis of vehicle interarrival time IAT and speed distributions for the development of a digital computer simulation model for queues and travel delays in work zones Important considerations in the development of work zone design guidelines include guidance delineation and the safety of workers and drivers A nationwide survey of current work zone best practices was conducted Based on the review of the existing ODOT guidelines superior practices available in other states relevant research and professional judgment of personnel involved in work zone activities a set of guidelines for work zone design are proposed It is anticipated that these research findings will result in the better design of work zones which will minimize traffic delays and improve safety In the second part of the project trailers each using two Wavetronix microwave radar units in side fire mode were developed to nonintrusively measure traffic The traffic was measured at six work zones sites with different types of lane configurations at different freeways in Ohio Traffic on the road was also independently measured using video and radar and the results compared to records from the trailers to verify that the trailers were measuring the traffic with reasonable accuracy IAT data of successive vehicles in freeflowing traffic ahead of work zones were analyzed and IAT distributions were generated as a function of the traffic volume for each lane and relationships between traffic volumes and cumulative IAT distributions were established allowing a direct conversion from hourly traffic counts to corresponding cumulative IAT distributions This conversion method produces fairly accurate cumulative IAT distributions for selected hourly traffic volumes It was also found that the same cumulative IAT distribution can be used to model the free flowing traffic at other freeway locations in Ohio which means that the IAT distributions are portable and scalable and a microscopic digital computer simulation model based on queueing theory may be developed to investigate traffic delays in work zones **Volume Reduction of Highway**

**Runoff in Urban Areas** Eric Strecker,Aaron Poresky,Robert M. Roseen,Ronald S. Johnson,Jane Soule,Venkat Gummadi,Raina Dwivedi,Adam Questad,Neil Weinstein,Emily Ayers,Marie Venner,2013 TRB s National Cooperative Highway Research Program NCHRP Report 802 Volume Reduction of Highway Runoff in Urban Areas Guidance Manual explores practices for the reduction of stormwater volumes in urban highway environments The report outlines a five step process for the identification evaluation and design of solutions for runoff volume reduction based on site specific conditions The manual also includes a set of volume reduction approach fact sheets and a user guide for the Volume Performance Tool publisher s description **Access Ohio 2004-2030: [ch. 1-11, appendix A-B** Ohio. Department of Transportation. Office of Urban and Corridor Planning,2004 Establishes ODOT s framework for investment in Ohio s transportation system through 2030 The recommended policies projects and performance measures established in the plan create a vision for a transportation future

that meets Ohio's expectations for a safe efficient and balanced transportation system

*5 Step Planning Study Process Training Manual*, 2001

*Vegetated Biofilter for Post Construction Storm Water Management for Linear Transportation Projects* Gayle F. Mitchell, 2010 The vegetated biofilter is a low impact development technique that can be integrated into stormwater management of linear transportation systems and capitalize on the natural environment to mitigate stormwater

A 4 ft 1 2 m wide by 14 ft 4 3 m long prototype vegetated biofilter was constructed on a moveable frame Artificial runoff was delivered to each of three grass beds for comprehensive tests at slopes and flow rates as follows 8 1 medium 4 1 medium 2 1 medium and 2 1 high The medium and high flows represented storm runoff events typical in Ohio First baseline tests were performed to obtain concentrations of constituents native to the biofilter Artificial runoff formulated with metals native soil and motor oil was applied to one bed at a high concentration for the first part of the event followed by a medium concentration a second bed received medium followed by low concentration runoff and the third bed received low concentration followed by tap water During the simulated storm events samples were obtained from the inlet surface runoff and underdrain and analyzed for total and dissolved metals TSS and oil and grease Prior to and at the end of testing cores were extracted from the bed separated into soil roots and grass and each component analyzed for metal content per mass of material The two beds receiving the initial high and medium concentration flow performed well and removal of 7 total metals and TSS was above 75% Removal of oil ranged from 30% to over 90% The bed receiving low concentration runoff which was near the baseline levels for constituents had mixed performance of removals ranging from none to above 90% illustrating the difficulty of any BMP to treat a relatively clean influent Metals above background levels were found primarily in the first half 7 ft 2 1 m of each bed Soil particles in the influent flow of the first test in each bed tagged with La were not resuspended in subsequent tests and were not measured at any significant concentration in the outlet surface flow

**Aesthetic Design Guidelines**, 2000

High Tension Cable Median Barrier Juan C. Medina, R. F. Benekohal, 2005

**Proceedings of the ... Annual Ohio Transportation Engineering Conference**, 1991

**Civil Engineering Studies**, 2006

**Ohio Documents**,

**Newberg Dundee Bypass, Yamhill County**, 2012

**Human Factors Opportunities to Improve Ohio's Transportation System**, 2005

*HRIS Abstracts*, 1990

**Preservation Approaches for High-Traffic-Volume Roadways** David G. Peshkin, 2011

**Newberg-Dundee Transportation Improvement Project, Bypass Element Location (tier 1), Yamhill County**, 2005

**Government Reports Announcements & Index**, 1988-06

**Structural Design of Roadway Shoulders. Final Report** K. Majidzadeh, 1986

Bridge Safety, Maintenance, Management, Life-Cycle, Resilience and Sustainability Joan Ramon Casas, Dan M. Frangopol, Jose Turmo, 2022-06-27 Bridge Safety Maintenance Management Life Cycle Resilience and Sustainability contains lectures and papers presented at the Eleventh International Conference on Bridge Maintenance Safety and Management IABMAS 2022 Barcelona Spain 11 15 July 2022 This e book contains the full papers of 322 contributions presented at IABMAS 2022 including the T Y Lin Lecture 4 Keynote

Lectures and 317 technical papers from 36 countries all around the world The contributions deal with the state of the art as well as emerging concepts and innovative applications related to the main aspects of safety maintenance management life cycle resilience sustainability and technological innovations of bridges Major topics include advanced bridge design construction and maintenance approaches safety reliability and risk evaluation life cycle management life cycle resilience sustainability standardization analytical models bridge management systems service life prediction structural health monitoring non destructive testing and field testing robustness and redundancy durability enhancement repair and rehabilitation fatigue and corrosion extreme loads needs of bridge owners whole life costing and investment for the future financial planning and application of information and computer technology big data analysis and artificial intelligence for bridges among others This volume provides both an up to date overview of the field of bridge engineering and significant contributions to the process of making more rational decisions on bridge safety maintenance management life cycle resilience and sustainability of bridges for the purpose of enhancing the welfare of society The volume serves as a valuable reference to all concerned with and or involved in bridge structure and infrastructure systems including students researchers and practitioners from all areas of bridge engineering

**Rock Riprap Design for Protection of Stream Channels Near Highway Structures** J. C. Blodgett, Christopher E. McConaughy, 1986

Ignite the flame of optimism with Get Inspired by is motivational masterpiece, **Odor Location And Design Manual Volume** . In a downloadable PDF format ( PDF Size: \*), this ebook is a beacon of encouragement. Download now and let the words propel you towards a brighter, more motivated tomorrow.

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injector pump (water) and had it ...