

BIDDERS COMPANY NAME

Request for Proposal #6315

Allen's Creek Storm Water Improvements

Prepared By:

Washtenaw County Purchasing
Administration Building
P.O. Box 8645
220 N. Main B-35
Ann Arbor, MI 48107

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WASHTENAW COUNTY

Finance Department

Purchasing Division

P.O. Box 8645, 220 N. Main, Ann Arbor, MI 48107-8645

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REQUEST FOR PROPOSAL # 6315

October 27, 2006

Washtenaw County Purchasing Division on behalf of the Office of the Washtenaw County Drain Commissioner is requesting proposals for planning, analysis, modeling, engineering and project management services to assess regional storm water management opportunities in the Allen's Creekshed, a tributary of the Huron River. This project(s) will be funded through the Michigan Department of Environmental Quality / Michigan Department of Treasury, State Revolving Loan Fund, to be administered by Washtenaw County and the Washtenaw County Drain Commissioner.

Sealed Proposals: Vendor will deliver one (1) original and six (6) copies to the following address:

**Washtenaw County
Administration Building
Purchasing Division
220 N. Main St. Room B-35
P.O.Box 8645
Ann Arbor, MI. 48107**

By Thursday, November 16, 2006 at 3:00 PM

This submission shall include the entire Request for Proposal document and any amendments if issued. Proposals received after the above-cited time will be considered a late quote and will not be accepted.

Questions, interpretations, or clarifications relevant to this RFP are required in writing, or via email, by Wednesday November 8, 5 PM.

- Please direct purchasing and procedural questions regarding this RFP, to **Anne Strieter at (734) 222-6760** or strietera@ewashtenaw.org
- Please direct specific technical questions regarding this RFP to Harry Sheehan at **(734) 222-6851** or sheehan@ewashtenaw.org.

Thank you for your interest.

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The successful bidder is expected to familiarize themselves with the body of knowledge related to water quantity/quality as of that date, and other information gathered since that time. Additionally, the successful bidder shall update and, if necessary, expand on the recommendations from the *Allen's Creek Technical Review Subcommittee* document, to provide a better understanding of current options.

Additional documents include:

- Original drawings of the various branches of the Allen's Creek Drain
- Storm sewer index maps
- City of Ann Arbor FEMA Flood Insurance Rate Maps and Flood Insurance Study
- Allen's Creek Watershed Management Plan, May 30, 2001. Allen's Creek Watershed Group.

To the extent that these documents would aid in the bid process and can be made available in electronic format, they can be found at the site below. Bidders may request that additional information be added to the site at least 7 days prior to bid opening. Requests should be made in writing (email).

http://www.ewashtenaw.org/government/drain_commissioner/ac_rfp.html

- Gather input via three public meetings: 1) Information gathering, 2) Discuss Options, 3) Present final recommendations. Attend and gather input at three City of Ann Arbor Water Committee meetings. In addition, plan for informal discussions with City of Ann Arbor and County staff. Incorporate all input as appropriate to inform project objectives. Plan for two presentations to the City of Ann Arbor City Council/Environment Committee.
- Collect additional information as necessary to sufficiently model flow, volume and water quality to meet the project purpose stated in Section I A. Include a thorough but concise discussion of your modeling approach and methods.
- Analyze potential options to better manage water quantity and water quality. Determine the most viable and acceptable projects to:
 - Reduce the peak flow for widest range of events possible, for the most vulnerable portions of the system
 - Minimize flood intensity, frequency, duration
 - Cut nonpoint source phosphorus loading to the Huron River
 - To the maximum extent possible, reduce pathogen concentrations entering the Huron River

C. Proposal Reservations:

- 1) Washtenaw County reserves the right to reject any and all proposals received as a result of this RFP. If a proposal is selected, it will be the most advantageous regarding price, quality of service, the Bidder's qualifications and capabilities to provide the specified service, and other factors, which Washtenaw County may consider. The County does not intend to award a bid fully on the basis of any response made to a proposal.
- 2) The county reserves the right to reject any and all bids, to waive or not waive informalities or irregularities in bids or bidding procedures, and to accept or further negotiate cost, terms, or conditions of any bid determined by the County to be in the best interest of the County even though it is not the lowest bid.
- 3) An official authorized to bind the provider to its provisions for at least a period of 90 days must sign proposals. Failure of the successful bidder to accept the obligation of the bid may result in the cancellation of any award.
- 4) In the event it becomes necessary to revise any part of the RFP, an addendum will be provided. Deadlines for submission of the RFPs may be adjusted to allow for revisions.
- 5) Proposals should be prepared simply and economically providing a straightforward, concise description of the vendor's ability to meet the requirements of the RFP. Proposals shall be written in ink or typewritten. No erasures are permitted. Mistakes may be crossed out and corrected and must be initialed in ink by the person **signing** the proposal. Double sided paper is preferred.
- 6) Developers and contractors are not eligible if they are presently debarred, suspended, proposed for debarment, declared ineligible, voluntarily excluded from participation in federal programs or have had a professional license suspended or revoked which is required to provide services for a project under this RFP.
- 7) Complete applications must be received by the Purchasing Department by **Thursday, November 16, 2006 at 3:00 pm**. Late or incomplete proposals will not be accepted! Proposals received after the deadline will not be reviewed or considered for funding.
- 8) Acceptance of a proposal does not constitute an agreement and does not obligate the County to award funds.

- 9) All costs of proposal preparation are the responsibility of the applicant. Washtenaw County shall not, in any event, be liable for pre-contractual expenses incurred by the bidder in the preparation and/or submission of the proposal. The applicant shall not include any such expense as part of the budget in the proposal.
- 10) Submission of a proposal shall constitute acknowledgement and acceptance of all terms and conditions contained in this RFP.
- 11) Additional information may be required by the County for determination of the applicant's qualification to successfully complete the project.
- 12) The County may require any or all respondents to attend an interview as a condition of proposal selection. Interviews will allow respondents to discuss their proposed work plan in greater detail. The interviews may include a twenty-minute presentation by the respondent, followed by approximately one-half hour of questions and answers. Respondents may use simple, economical visual aids during the interviews.

II. PROPOSAL PREPARATION INSTRUCTIONS

A. PROPOSAL NARRATIVE

(**Note:** Spiral bound soft cover proposals are preferred, however, hardbound three-ring documents are acceptable. Use tab dividers to label and separate each addendum. Pages should be numbered with each addendum starting over with page one.)

1. Team Background and Prior Experience- Provide bidder's qualifications, years of experience, and describe experience in providing the level and type of service specified in the proposal. For each reference, include the name of the client, a contact person, address, telephone number, email, the start and completion dates of the project, the original contract duration, amount and the final project cost. Indicate key staff involved in projects described. Include all additional relevant data pertaining to the project team
(Clearly label a tab insert page as Addenda A)
2. Work Plan – Provide a comprehensive, concise work plan presenting all tasks outlined in Section I B of this RFP. The work plan is not limited to those elements outlined in Section I B; should bidders wish to recommend other items, they may be added as a separate task or incorporated into tasks identified in Section 1B. Define deliverables.
(Clearly label a tab insert page as Addenda B)
3. Project Team - Provide resumes of the project manager, key staff and sub-contract team members and any other key personnel. Define their capacity or role. Provide an organizational chart for your project team. Enclose single-page resumes as part of this proposal for all key members including number of years experience and all similar projects.
(Clearly label a tab insert page as Addenda C)

4. Cost Proposal - Provide a budget itemizing, hourly rates, overhead factors, fee and all other details by which project costs have been derived for **Section 1 B Task 1: Planning only**. Summarize by name and title, personnel hourly commitment by task and personnel total hours.

Should project planning result in design and construction of a project(s), updated costing information will be requested at that time. For Tasks 2 and 3, it is expected that the personnel rates, overhead and fee will be in line with costing information provided for Task 1, with an expectation that some adjustments will be made. Should it be likely that other personnel will be expected to participate in Tasks 2 and 3, include currently hourly rates for these individuals. Include any obvious, substantive direct costs that can be expected for Tasks 2 and 3.

(Clearly label a tab insert page as Addenda D)

5. Timeline - Provide a project schedule, estimating completion times for **Section I B Task 1** only. When planning, take into account submittal deadlines for to the MDEQ State Revolving Loan Fund application process.

(Clearly label a tab insert page as Addenda E)

III. EVALUATION CRITERIA

Evaluation Item	Maximum Points
A. Qualifications of the firm or firms assigned, including appropriate areas of expertise, technical capabilities and quality references that suggest they are best qualified to undertake this project. Evidence of successful completion of similar projects in the past. Number of past and present projects. Ability to perform work in a timely manner with high-quality products and output. Understanding of Drain Projects, State Revolving Loan processes, TMDL's and storm water permitting in Michigan.	15
B. Personnel's past involvement with similar projects. Experience coordinating with multiple units of government, agencies and the public. Availability of designated personnel to complete the work in a timely manner. Overall balance of skills and experience with the specific components outlined in this RFP: <ul style="list-style-type: none">• Team Communications• Public Involvement & Facilitation• Planning• Modeling• Engineering (and Landscape) Design• Bid Assistance & Construction Engineering	25
C. The technical quality and composition of proposed work plan, understanding, thoroughness, brevity and clarity of presentation.	25
D. Experience with PA 451 permitting process, preferably with MDEQ Jackson District Office	15
E. Fee Proposal	10
F. Geographic location, commuting distance	5
G. Ability of the firm to bring unique skills, experience, resources to the project	5
Total Points	100

IV. STANDARD PROVISIONS FOR COUNTY CONTRACTS

The successful respondent shall comply with the standard contract as established by the County, see Attachment B. Any request for contract amendment or alternate language must be submitted with respondent's proposal.

V. IMPORTANT PROPOSAL DATES

<u>Event:</u>	<u>Date</u>
1. RFP Sent to Bidders	10/27/2006
2. Questions to customer cut-off	11/08/2006
3. Response Due	11/16/2006
4. Interviews	12/08/2006

VI. ATTACHMENTS

The following documents are attached to this RFP:

- A. Proposal Cover Sheet and Signature Page
- B. County Service Contract
- C. Allen's Creek Technical Review Subcommittee

ATTACHMENT A: PROPOSAL COVER SHEET & SIGNATURE PAGE

_____ Signature	_____ Company Name
_____ Print Name	_____ Company Address
_____ Title	_____ City _____ St. _____ Zip
_____ Telephone #	_____ Fax #
_____ Federal Tax ID #	<p align="right"><u>CHECK ONE</u></p> Partnership _____ Non Profit Corp. _____ Profit Corp. _____ Other _____

The above individual is authorized to sign on behalf of company submitting proposal. Proposals must be signed by an official authorized to bind the provider to its provisions for at least a period of 90 days.

=====

WASHTENAW COUNTY STAFF USE ONLY:

DATE/TIME RECEIVED _____ Staff Initials _____
 MINIMUM SUBMISSION REQUIREMENTS MET? YES _____ NO _____

ATTACHMENT B: COUNTY SERVICE CONTRACT (SAMPLE)

ARTICLE I - SCOPE OF SERVICES

The Contractor will **(SPELL OUT SCOPE OF SERVICE)**

ARTICLE II - COMPENSATION

Upon completion of the above services and submission of invoices the County will pay the Contractor an amount not to exceed **(SPELL OUT DOLLAR AMOUNT)**.

ARTICLE III - REPORTING OF CONTRACTOR

Section 1 - The Contractor is to report to Office of the Washtenaw County Drain Commissioner and will cooperate and confer with him/her as necessary to insure satisfactory work progress.

Section 2 - All reports, estimates, memoranda and documents submitted by the Contractor must be dated and bear the Contractor's name.

Section 3 - All reports made in connection with these services are subject to review and final approval by the County Administrator.

Section 4 - The County may review and inspect the Contractor's activities during the term of this contract.

Section 5 - When applicable, the Contractor will submit a final, written report to the County Administrator.

Section 6 - After reasonable notice to the Contractor, the County may review any of the Contractor's internal records, reports, or insurance policies.

ARTICLE IV - TERM

This contract begins on **(MONTH, DAY, YEAR)** and ends on **(MONTH, DAY, YEAR)**.

ARTICLE V - PERSONNEL

Section 1 - The contractor will provide the required services and will not subcontract or assign the services without the County's written approval.

Section 2 - The Contractor will not hire any County employee for any of the required services without the County's written approval.

Section 3 - The parties agree that the Contractor is neither an employee nor an agent of the County for any purpose.

Section 4 - The parties agree that all work done under this contract shall be completed in the United States and that none of the work will be partially or fully completed by either an offshore subcontractor or offshore business interest either owned or affiliated with the contractor. For purposes of this contract, the term, "offshore" refers to any area outside the contiguous United States, Alaska or Hawaii.

ARTICLE VI - INDEMNIFICATION AGREEMENT

The contractor will protect, defend and indemnify Washtenaw County, its officers, agents, servants, volunteers and employees from any and all liabilities, claims, liens, fines, demands and costs, including legal fees, of whatsoever kind and nature which may result in injury or death to any persons, including the Contractor's own employees, and for loss or damage to any property, including property owned or in the care, custody or control of Washtenaw County in connection with or in any way incident to or arising out of the occupancy, use, service, operations, performance or non-performance of work in connection with this contract resulting in whole or in part from negligent acts or omissions of contractor, any sub-contractor, or any employee, agent or representative of the contractor or any sub-contractor.

ARTICLE VII - INSURANCE REQUIREMENTS

The Contractor will maintain at its own expense during the term of this Contract, the following insurance:

1. Workers' Compensation Insurance with Michigan statutory limits and Employers Liability Insurance with a minimum limit of \$100,000 each accident for any employee.
2. Comprehensive/Commercial General Liability Insurance with a combined single limit of \$1,000,000 each occurrence for bodily injury and property damage. The County shall be added as "additional insured" on general liability policy with respect to the services provided under this contract.
3. Automobile Liability Insurance covering all owned, hired and nonowned vehicles with Personal Protection Insurance and Property Protection Insurance to comply with the provisions of the Michigan No Fault Insurance Law, including residual liability insurance with a minimum combined single limit of \$1,000,000 each accident for bodily injury and property damage.

Insurance companies, named insureds and policy forms shall be subject to the approval of the Washtenaw County Administrator. Such approval shall not be unreasonably withheld. Insurance policies shall not contain endorsements or policy conditions which reduce coverage provided to Washtenaw County. Contractor shall be responsible to Washtenaw County or insurance companies insuring Washtenaw County for all costs resulting from both financially unsound insurance companies selected by Contractor and their inadequate insurance coverage. Contractor shall furnish the Washtenaw County Administrator with satisfactory certificates of insurance or a certified copy of the policy, if requested by the County Administrator.

No payments will be made to the Contractor until the current certificates of insurance have been received and approved by the Administrator. If the insurance as evidenced by the certificates furnished by the Contractor expires or is canceled during the term of the contract, services and related payments will be suspended. Contractor shall furnish the County Administrator's Office with certification of insurance evidencing such coverage and endorsements at least ten (10) working days prior to commencement of services under this contract. Certificates shall be addressed to the County Administrator, P. O. Box 8645, Ann Arbor, MI, 48107, and shall provide for 30 day written notice to the Certificate holder of cancellation of coverage.

ARTICLE VIII - COMPLIANCE WITH LAWS AND REGULATIONS

The Contractor will comply with all federal, state and local regulations, including but not limited to all applicable OSHA/MIOSHA requirements and the Americans with Disabilities Act.

ARTICLE IX - INTEREST OF CONTRACTOR AND COUNTY

The Contractor promises that it has no interest which would conflict with the performance of services required by this contract. The Contractor also promises that, in the performance of this contract, no officer, agent, employee of the County of Washtenaw, or member of its governing bodies, may participate in any decision relating to this contract which affects his/her personal interest or the interest of any corporation, partnership or association in which he/she is directly or indirectly interested or has any personal or pecuniary interest. However, this paragraph does not apply if there has been compliance with the provisions of Section 3 of Act No. 317 of the Public Acts of 1968 and/or Section 30 of Act No. 156 of Public Acts of 1851, as amended by Act No. 51 of the Public Acts of 1978, whichever is applicable.

ARTICLE X - CONTINGENT FEES

The Contractor promises that it has not employed or retained any company or person, other than bona fide employees working solely for the Contractor, to solicit or secure this contract, and that it has not paid or agreed to pay any company or person, other than bona fide employees working solely for the Contractor, any fee, commission, percentage, brokerage fee, gifts or any other consideration contingent upon or resulting from the award or making of this contract. For breach of this promise, the County may cancel this contract without liability or, at its discretion, deduct the full amount of the fee, commission, percentage, brokerage fee, gift or contingent fee from the compensation due the Contractor.

ARTICLE XI - EQUAL EMPLOYMENT OPPORTUNITY

The Contractor will not discriminate against any employee or applicant for employment because of race, creed, color, sex, sexual orientation, national origin, physical handicap, age, height, weight, marital status, veteran status, religion and political belief (except as it relates to a bona fide occupational qualification reasonably necessary to the normal operation of the business).

The Contractor will take affirmative action to eliminate discrimination based on sex, race, or a handicap in the hiring of applicant and the treatment of employees. Affirmative action will include, but not be limited to: Employment; upgrading, demotion or transfer; recruitment advertisement; layoff or termination; rates of pay or other forms of compensation; selection for training, including apprenticeship.

The Contractor agrees to post notices containing this policy against discrimination in conspicuous places available to applicants for employment and employees. All solicitations or advertisements for employees, placed by or on the behalf of the Contractor, will state that all qualified applicants will receive consideration for employment without regard to race, creed, color, sex, sexual orientation, national origin, physical handicap, age, height, weight, marital status, veteran status, religion and political belief.

ARTICLE XII - LIVING WAGE

The parties understand that the County has enacted a Living Wage Ordinance that requires covered vendors who execute a service or professional service contract with the County to pay their employees under that contract, a minimum of either \$9.87 per hour with benefits or \$11.58 per hour without benefits. Contractor agrees to comply with this Ordinance in paying its employees. Contractor understands and agrees that an adjustment of the living wage amounts, based upon the Health and Human Services poverty guidelines, will be made on or before May 1, 2007 and annually thereafter which amount shall be automatically incorporated into this contract. County agrees to give Contractor thirty (30) days written notice of such change. Contractor agrees to post a notice containing the County's Living Wage requirements at a location at its place of business accessed by its employees

ARTICLE XIII - EQUAL ACCESS

The Contractor shall provide the services set forth in Article I without discrimination on the basis of race, color, religion, national origin, sex, sexual orientation, marital status, physical handicap, or age.

ARTICLE XIV - OWNERSHIP OF DOCUMENTS AND PUBLICATION

All documents developed as a result of this contract will be freely available to the public. None may be copyrighted by the Contractor. During the performance of the services, the Contractor will be responsible for any loss of or damage to the documents while they are in its possession and must restore the loss or damage at its expense. Any use of the information and results of this contract by the Contractor must reference the project sponsorship by the County. Any publication of the information or results must be co-authored by the County.

ARTICLE XV - ASSIGNS AND SUCCESSORS

This contract is binding on the County and the Contractor, their successors and assigns. Neither the County nor the Contractor will assign or transfer its interest in this contract without the written consent of the other.

ARTICLE XVI - TERMINATION OF CONTRACT

Section 1 - Termination without cause. Either party may terminate the contract by giving thirty (30) days written notice to the other party.

ARTICLE XVII - PAYROLL TAXES

The Contractor is responsible for all applicable state and federal social security benefits and unemployment taxes and agrees to indemnify and protect the County against such liability.

ARTICLE XVIII - PRACTICE AND ETHICS

The parties will conform to the code of ethics of their respective national professional associations.

ARTICLE XIX- CHANGES IN SCOPE OR SCHEDULE OF SERVICES

Changes mutually agreed upon by the County and the Contractor, will be incorporated into this contract by written amendments signed by both parties.

ARTICLE XX - CHOICE OF LAW AND FORUM

This contract is to be interpreted by the laws of Michigan. The parties agree that the proper forum for litigation arising out of this contract is in Washtenaw County, Michigan.

ARTICLE XXI - EXTENT OF CONTRACT

This contract represents the entire agreement between the parties and supersedes all prior representations, negotiations or agreements whether written or oral.

**ATTACHMENT C: ALLEN'S CREEK TECHNICAL REVIEW SUB-
COMMITTEE REPORT**

Report

Allen's Creek Technical Review Sub-Committee

Version: August 23, 2002

Purpose

The Allen's Creek Technical Sub-Committee (sub-committee) is a group of experts charged with reviewing existing studies and reports that pertain to the Allen's Creek Watershed in order to identify their breadth and depth with respect to water quantity issues, and subsequently to determine gaps of information.

Objectives

- Review all existing studies and reports regarding Allen's Creek Watershed.
- Identify any gaps in the information and identify how to obtain additional information that is necessary to provide concrete recommendations.
- Report findings and, where possible, make technical recommendations to the Allen's Creek Task Force.

Review of Existing Studies and Reports

The Huron River Watershed Council prepared a listing of available materials regarding Allen's Creek Watershed. Members of the sub-committee expanded this initial resource list. The listings of materials considered by the sub-committee are shown in Appendix A. Sub-committee members selected materials to review and presented their summaries to the whole group.

In addition to reviewing existing materials, the sub-committee sought information from state and local experts, Bruce Menerey of MDEQ, Land and Water Management Division, spoke to the sub-committee and answered questions at the February 22, 2002 meeting. Mr. Menerey oversees the Federal Flood Plain Program in Michigan.

Mark Lodewyk of Smith GroupJJR attended several meetings of the Technical Sub-Committee. Mr. Lodewyk had "reconstructed" the model used to generate the Flood Insurance Study, (FIS) of 1983. This reconstruction was used by Smith GroupJJR to determine the impact of the Ann Arbor Downtown Shelter and YMCA projects proposed in the Allen's Creek Floodway.

During the review process for the Ann Arbor Downtown Shelter and YMCA projects, it was determined that the current Flood Insurance Rate Map (FIRM) for Allen's Creek incorrectly depicts the floodway boundaries. The FIRM shows the flood plain boundary based on information from a 1985 revision, but the floodway is representative of the 1982 version of the map.

Lee Fahrner of Midwestern Consulting, Inc. also attended a meeting to discuss the modeling done by his staff as part of work done on the Murray-Washington Branch of Allen's Creek. This modeling was done to confirm that the Liberty Glendale project would have minimal hydraulics upstream and downstream impacts on the stream. Mr. Fahrner explained to the sub-committee the 1-foot difference between the MCI 100-year flood elevation and the 100-year flood elevation on other plans.

Elizabeth Riggs of the Huron River Watershed Council reported that the impervious coverage in the Allen's Creek Watershed rose from 28.3% (1985) to 39.6% (1995) based on SEMCOG data. Some members of the group expressed concern that the impervious coverage had risen more rapidly than reported. Without properly designed and maintained detention, increased impervious cover will cause more runoff at a faster rate.

The MDEQ has changed the size of the 100-year, 24-hour rain event used to calculate the flood plain. The previous event had been 4.8 inches over 24 hours. The new event is 4.36 inches over 24 hours. Members of the sub-committee expressed concern with MDEQ's change. The concern stated was recent experience is trending to more intense storms, not less intense as indicated by MDEQ's action. The decrease in the size of the storm event will result in a calculated decrease in the runoff, which may result in a smaller area delineated as flood plain.

Mike Wiley with the University of Michigan asked Lee Fahrner to recalculate the work for the Liberty-Glendale project using the new 100-year rainfall event. This resulted in a 15% flow decrease from 226 cfs to 190 cfs. This result may or may not be representative of how the rainfall change would affect calculations for the whole Creekshed.

In an attempt to summarize the knowledge known about Allen's Creek, Mike Wiley produced a summary table. The final version of this table is shown at the end of this document.

Findings – Gaps and Additional Information Needs Identified

The table shows that the most significant deficiency of the work done to date on the Allen's Creek is lack of calibration for hydrologic and hydraulic modeling. The past models were developed with no or very minimal calibration of the model vs. actual overland flows. Any new modeling effort will face the same deficiency.

Calibration is essential. Without accurate calibration, no model can be assured to accurately reflect the real physical system being represented.

For a model to depict the extent of floodplains and floodways, the model needs to be calibrated by the use of data from storm events large enough to cause overland flow. The only data that exists for Allen's Creek overland flow is the verbal description of the 1968 event. No database exists that contains surveyed/verified elevations related to precipitation events.

If a new model were undertaken without good calibration data, the new model would be as suspect as the current model. Matching model outputs could result since neither the current model nor a new model is calibrated to local observed data from real storm events. The utility of a hydrologic and hydraulic model without good calibration is limited.

Recommendations

1. The first step to improved modeling of the Allen's Creek Watershed is to set up a means of gathering accurate data for overland flow and precipitation events.

The effort and means to gather the data should be planned to be in place for an extended period of time in order to capture the necessary (large enough) events, measure the results of watershed management efforts, and assess the impacts of future changes. The effort could be "high tech" with recording gauges or a less expensive method with manual "tell-tale" gauges. The effort could be done through consulting services or the use of interested parties within the watershed.

2. Dynamic modeling, with good calibration and consistent data maintenance, can be used to predict the results of proposed development and watershed management efforts. Adequate staff to maintain the model would be necessary to make use of the predictive capabilities.
3. Additionally, the City needs to initiate and fund the process of a Letter of Map Revision through FEMA to correct the floodway designation. This alteration would correct the defect discovered during the shelter project. The MDEQ will be at least 4 to 6 years away from making that revision unless the City initiates the process sooner.

Technical Subcommittee members:

Craig Hupy, Chair	City of Ann Arbor Water Utilities Department
Tom Bletcher	City of Ann Arbor Resident
Rita Caruso	Allen Creek Watershed Group
Jerry Hancock	City of Ann Arbor Building Department
Ethel Potts	Allen Creek Watershed Group
Elizabeth Riggs	Huron River Watershed Council
Brad Ruppel	City of Ann Arbor Building Department
Mike Wiley	University of Michigan
Dennis Wojcik	Washtenaw County Drain Commission

Appendix A

Resource List for Allen's Creek Watershed Technical Assessment

Ann Arbor Downtown Plan, 1988 Approved by the Planning Commission and Downtown Development Authority.

Ann Arbor City Code, Chapter 57, Section 5:126 through 5:129 and Attachment A (Guidelines for the Protection and Mitigation of Natural Features), Section 1:5(2).

Black & Veatch, 1995, Ann Arbor Utilities Department, Murray-Washington Analyses Detention Options in the Upper Reaches.

Enerson, J. ~ 1970. Flood Problems and Perceptions in Allen's Creek Drainage.

Federal Emergency Management Agency (FEMA). Answers to Questions about the National Flood Insurance Program.

FEMA Flood Insurance Study, City of Ann Arbor, Michigan, Washtenaw County – January 2, 1992.

FEMA Flood Insurance Rate Maps, City of Ann Arbor, Michigan, Washtenaw County, Community #260213 – January 2, 1992.

Floodplain Management Resolution of the City of Ann Arbor, Michigan – November 19, 1991.

Hosek, G. 1999. Management for Local Officials with related regulations including the National Flood Insurance Program. Land and Water Management Division, MDEQ.

McNamee, Porter and Seeley. 1995. Depot Street and Allen's Creek Drain Groundwater Investigation for Washtenaw County Drain Commission.

McNamee, Porter and Seeley. 1983. City of Ann Arbor, Stormwater Management Plan for Allen's Creek Drainage.

McNamee, Porter and Seeley. 1978. Washtenaw County Drain Commission, Allen's Creek Drain and Branches, City of Ann Arbor, Michigan, Report on Liberty Street Retention Basin on the Murray-Washington Drain.

McNamee, Porter and Seeley (Engineers). Johnson, Johnson and Roy, Inc. (Planners). 1974. Allen's Creek Drain: Analysis and Preliminary Alternatives for Relief.

Meier, P. G. and J. Garman, Institute of Environmental and Industrial Health, University of Michigan. 1984. The Impact of Allen's Drain Water on the Flora and Fauna Indigenous to the Huron River.

Michigan Building Code 2000.

Palmer, Jr., J.S. for Design Systems Research, Incorporated. 1974. Progress Report: Flood Plain Management of the Allen's Creek and Branches Drainage Basin.

State of Michigan 1994. Part 31-Water Resources Protection, Act 451, Natural resources and environmental protection act.

U.S. Army Corps of Engineers. Special Flood hazard Information Report: Huron River, Ann Arbor – Ypsilanti.

MDEQ 1985, Input data for HEC-2 Model of Flood Plain Mapping.

FEMA Guide to revising flood maps.

University of Michigan Stormwater Study (No Copy available to the Sub Committee)

MCI - Liberty Glendale Study

Flood Plain Policy Options. (City of Ann Arbor Planning Department) (Draft in process)

1972 Report by McNamee, Porter and Seeley.

Predictive rain events for SE Michigan. Union of Concerned Scientists

Reference List

Compiled November 2001 – Revised December 2001

With input from City of Ann Arbor, Huron River Watershed Council, and Washtenaw County Drain Office

Table Summarizing Allen's Creek Data Availability

Overall Character of Data	Floodplain						Creek, tributaries	
	Hydrologic modeling		Hydraulic modeling		Flood extent mapping		Water Quality modeling	
	Parameterize	Calibrate	Parameterize	Calibrate	Parameterize	Calibrate	Parameterize	Calibrate
	Sufficient but Old	None	Sufficient but Old	None	Sufficient but Old	None to little	Very Little	Very Little
Existing Studies	1983 McNamee Porter & Seeley Air photo based? Some recent cross sections 1983 Brater Method 1997 MWD TR55		1983 McNamee Porter & Seeley Air photo based? Some recent cross sections 1997 Black & Veatch SWMM for enclosed flows	Minimal	1 foot contour Air photo 1983	Anecdotal 1968 flood observations	1993 Black & Veatch Application for NPDES Permit, gross loadings Citywide by land uses. 1997 MDEQ Sampling	Winnell 1972 outfall W. Say data 1978 K. Cronk 2001 outfall MDNR 1990s TMDL Meier, P. (?)

Summary: Almost no data to calibrate or evaluate existing models. Gathering flow and precipitation data seems first priority.

- Abbreviations:
- MWD: Murray Washington Drain
 - TR55: Technical Release 55, a storm water model issued by the Soil Conservation Service
 - SWMM: Storm Water Management Model
 - NPDES: National Pollutant Discharge Elimination System
 - MDNR: Michigan Department of Natural Resources
 - MDEQ: Michigan Department for Environmental Quality
 - TMDL: Total Maximum Daily Load