

# *Perspectives on MS4 Permitting: Updates, Challenges, and Future Directions*



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# Recent Stormwater Developments at EPA

- Watershed Approach
- EPA Workgroups – to further address MS4 stormwater concerns
  - Post Construction Considerations
    - Infrastructure incl. low impact development
    - Volume Based Hydrology
  - Construction Issues
    - CGP & ELG development
    - Developing Local Construction Programs
  - TMDLs and MS4 Permitting
  - Providing Specificity and Detail in MS4 Permits
  - Developing MS4 Performances Measures
  - Annual Reporting
- Outreach efforts – Guidance Manuals, Webcasts, Workshops

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# Historical Framework: GAO Stormwater Report #1 (2001)

## Better Data and Evaluation of Urban Runoff Programs Needed to Assess Effectiveness

### Findings:

EPA has not determined the cost of the storm water program and EPA and states have been *unsuccessful in developing measurable program goals and in demonstrating program effectiveness.*

# GAO Stormwater Report #2 (2007)

- Determine the progress in implementing the storm water program
- Evaluate the extent to which the program burdens communities
- Examine the accuracy of EPA's cost estimates
- Examine the data available for assessing program burden.

GAO

United States Government Accountability Office  
Report to Congressional Requesters

May 2007

## CLEAN WATER

### Further Implementation and Better Cost Data Needed to Determine Impact of EPA's Storm Water Program on Communities

In this Web version, appendix I, "Briefing Provided to Congressional Requesters," is available as a separate electronic file by clicking the link on page 40.



GAO-07-479

# GAO Report #2 Conclusions (2007)

## Findings:

- Program implementation has been slow.
- Uniform data does not exist to estimate program costs.
- Establishing reliable funding sources reduces burden.
- **To evaluate the program in 2012, EPA needs more complete and consistent reporting on scope, costs, and program results.**

## GAO Recommendations:

- Issue guidance or consider regulatory changes:
  - (1) MS4s report on activities in sufficient detail to determine scope, costs, and results; and
  - (2) MS4s report this information consistently.

# National Research Council Stormwater Study

## Project Goals

- *To better understand the links between stormwater pollutant discharges and ambient water quality, to assess the state of the science of stormwater management, and to make associated policy recommendations*
- Significant Recommendations included in this report regarding EPA's programmatic approach to stormwater
- EPA is currently assessing recommendations to determine future program directions

# The Storm Water Challenges

- Updating Stormwater Management Plans (SWMPs) to reflect changing water quality conditions or growth scenarios
- MS4s are most likely measuring the implementation of program elements (outputs) rather than impacts (outcomes) "result"
- Obstacles to Effective SWMPs
  - Difficult for stormwater managers to articulate funding needs due to lack of specificity regarding appropriate levels of effort
- MS4 communities vulnerable to citizen lawsuits over MS4 implementation
- How do municipalities deal with an unfunded mandate?



# Considerations and Future Directions for the NPDES Stormwater Program

# 40 CFR §122.37 Preamble Summary

- EPA is committed to revisiting the regulations for the municipal storm water discharge control program after completion of the first two permit terms.
- EPA intends to use this time to work closely with stakeholders on research efforts.
- Gathering and analyzing data related to the storm water program, including data regarding the effectiveness of BMPs, is critical to EPA's storm water program evaluation.



# 40 CFR §122.37 Program Evaluation

- EPA will evaluate the small MS4 regulations after December 10, 2012 and make any necessary revisions.





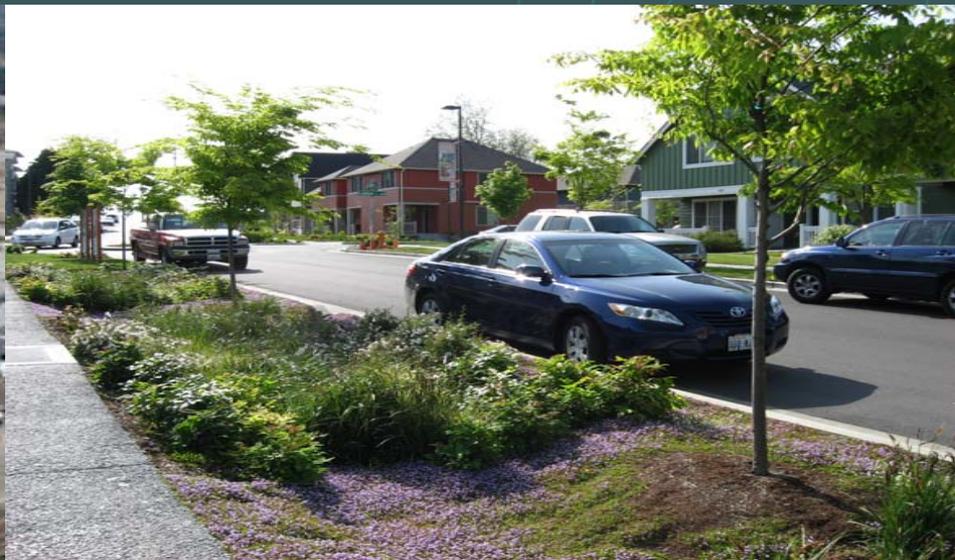
# Storm Water Permitting: Post Construction and Green Infrastructure:

# What is Green Infrastructure?

- Many different definitions
- EPA uses the term to mean an approach to managing stormwater:
  - Utilizing natural or engineered systems that mimic natural landscapes to capture, cleanse and reduce stormwater runoff through plant, soil and microbial processes
- Regional or local scale efforts
- Manages wet weather flow by managing on-site storm water

# Green Infrastructure Principles

- Capture stormwater on-site
- Infiltrate stormwater
- Evapotranspirate stormwater
- Recycle/reuse stormwater



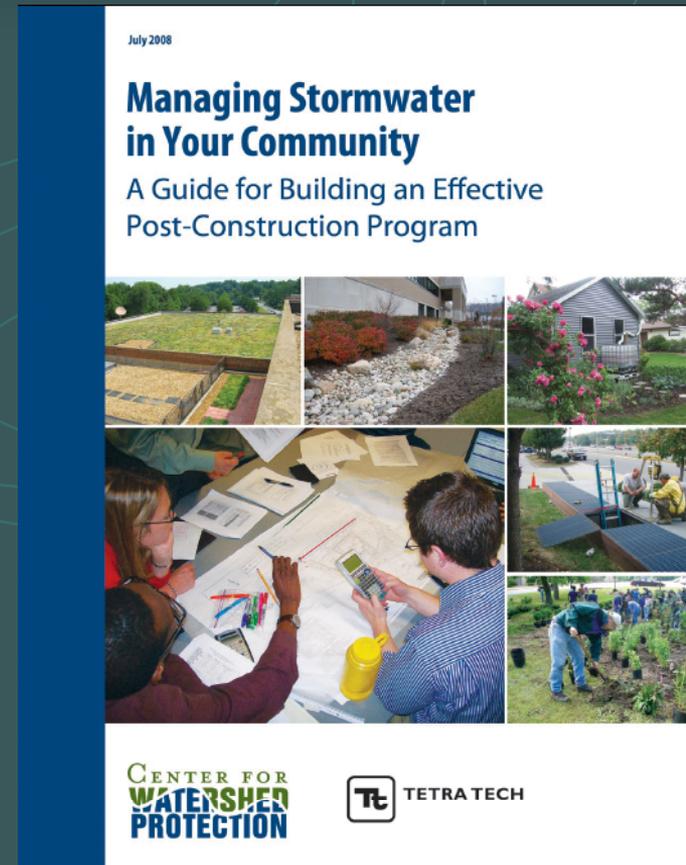
# Underlying Principles – NPDES Stormwater and Green Infrastructure

- Green Infrastructure to be the foundation for a state's NPDES stormwater management program
- Recognize that some development patterns have better environmental performance, e.g., redevelopment
- Use of an iterative approach to permitting, e.g., each permit cycle builds off gains made in the previous permit cycle



# Post-Construction

- Develop, implement, and enforce a program to address stormwater runoff from new development and redevelopment projects
- Ordinance covering new development and redevelopment
  - Requirements for plan review
  - Reference design criteria
  - Maintenance requirements
  - Fines and penalties
- Developed or adapted design criteria, which include low impact BMPs
- Plan review process with trained staff
- Maintenance program
- Trained inspection staff



# Construction Issues and Concerns



# Construction – Considerations for Local Construction Programs

## ● Ordinances in place

- Sediment and erosion
- Good housekeeping/ pollution prevention
- Submit plans for review
- Fines and penalties

## ● Plan review process

- Trained staff
- Integrated with post-construction review

## ● Inspection

- Inventory and tracking of sites
- Ability to respond to citizen complaints
- Schedules, routine vs. targeted

## ● Education

- Builders and developers, citizens, staff



# Construction and Development Effluent Guideline

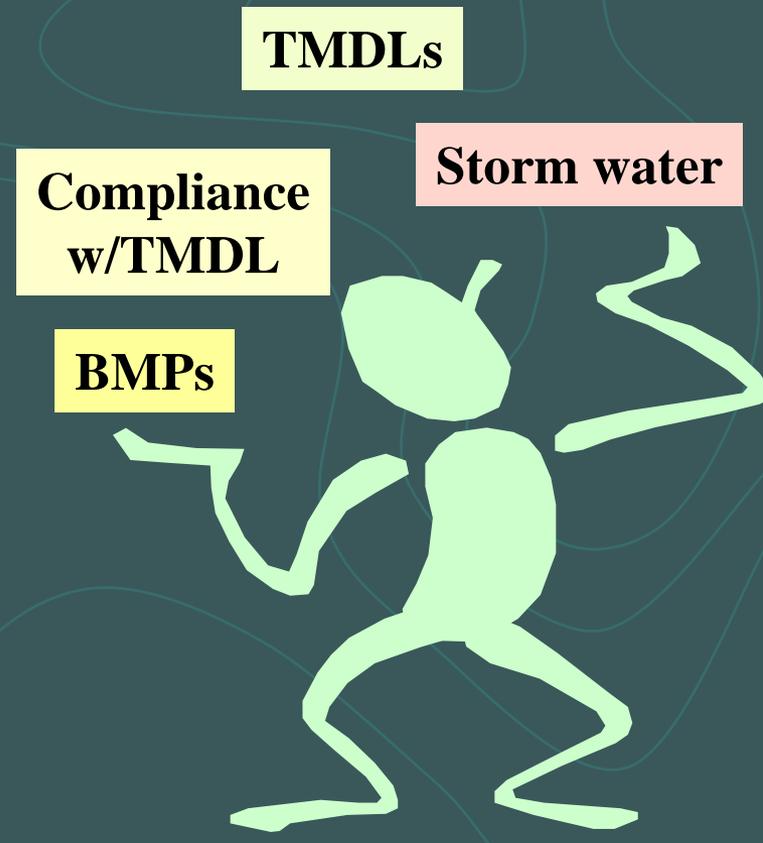
- C&D ELG back in development as a result of law suit
  - Currently scheduled for finalization by December 2009
  - Agency developed options for proposal
  - Rule will apply nationally and set "best available technology"
  - Information will be posted at [www.epa.gov/waterscience](http://www.epa.gov/waterscience)

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# TMDLs and MS4 Permitting

# The TMDL/Stormwater Dilemma

- Many waters listed for impairments because of pollutants in storm water discharges
- Plaintiffs are raising the issue that TMDLs are not being implemented in permits
- Translating TMDLs into storm water permits (reasonable assurance)
- Monitoring for environmental results
- We need to reconcile these concerns



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# Integrating Stormwater Permitting and TMDLs

- Significant challenge – providing reasonable assurance that the implementation of BMPs will result in the attainment of Water Quality Standards
- Success in tying TMDLs to water quality improvements rely on the successful implementation of the Storm Water Management Plans in the NPDES permits
- Reissued permits (both Phase I and Phase II) must reconcile and merge goals and measurements associated with management plan implementation into the permit

# Integrating Stormwater Permitting and TMDLs

## Factors to Address in TMDLs

- Specifically identify stormwater permittees in TMDLs
- Identify affected areas of MS4s in TMDLs
- Quantitative WLAs for stormwater sources
- But also “translate” quantitative load values to the language of specifying BMPs
  - Then the General Permit can refer to the TMDL, and permittees know what to do

# Establishing and Promoting Control Strategies to Support Alternatives to TMDLs

- Permit language can encourage municipalities to examine alternative pollution requirements that may delay the need for a TMDL
  - “other pollution control requirements” would be designed to meet WQS over a reasonable period of time, while demonstrating in the Annual Reports:
    - effective reduction of stormwater runoff
    - documentation of specified use of BMPs and their implementation
    - quantify improvements to water quality

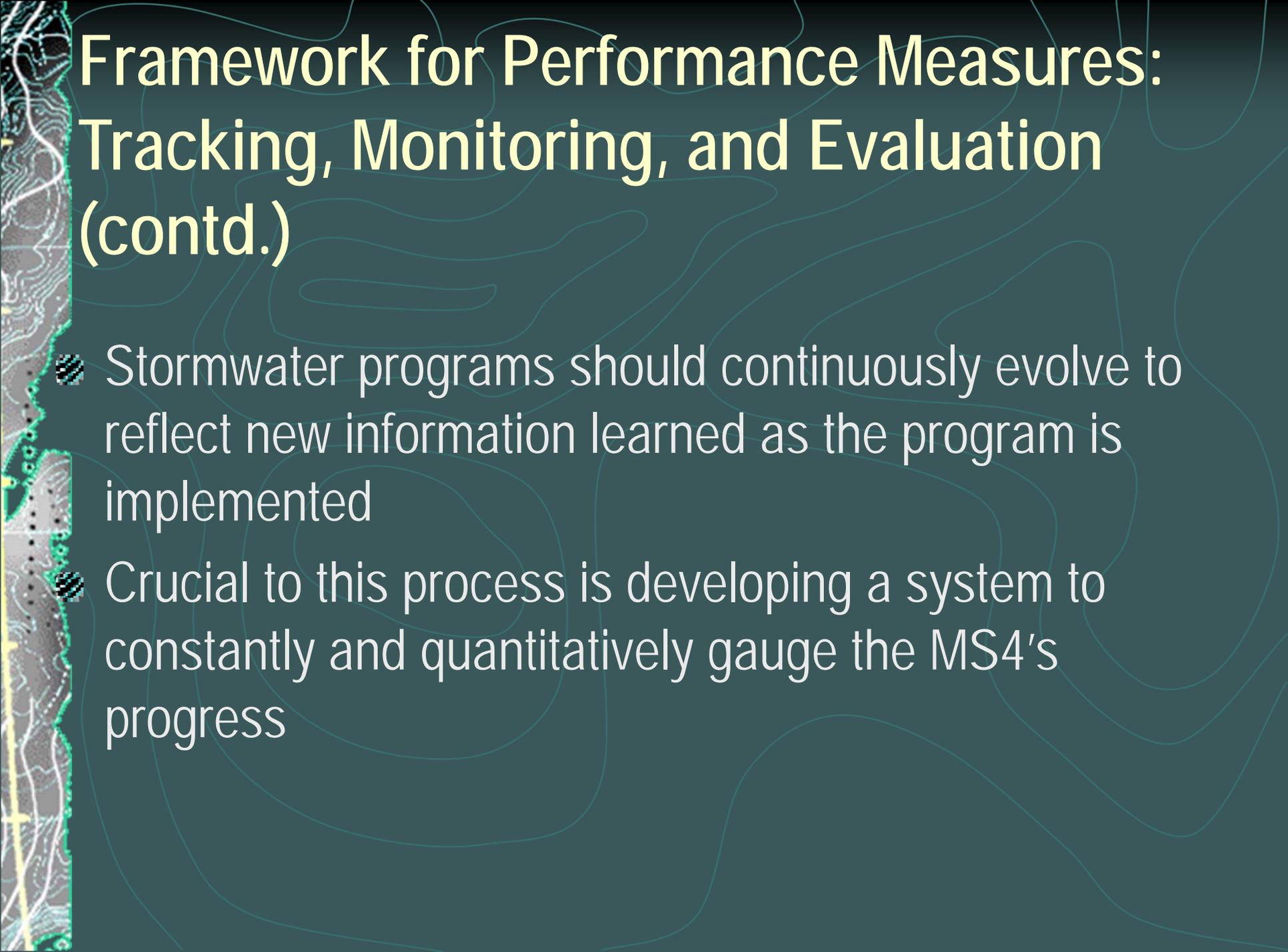
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# Providing Specificity and Detail in MS4 Permits

- Efforts are underway to better define conditions in the permit
- Language must be created to better define the goals and expectations of the Permit and what is expected of the MS4
- MS4 Improvement Guidance currently under development

# Framework for Performance Measures: Tracking, Monitoring, and Evaluation

- Ultimate goal of the Phase II MS4 program is to implement practices that protect and improve water quality
- MS4 programs can assess progress using measures of success
  - Measurable Goals
  - Evaluating effectiveness of BMPs
  - Demonstrating compliance with the MS4 permit



# Framework for Performance Measures: Tracking, Monitoring, and Evaluation (contd.)

- Stormwater programs should continuously evolve to reflect new information learned as the program is implemented
- Crucial to this process is developing a system to constantly and quantitatively gauge the MS4's progress

# Framework for Performance Measures: Tracking, Monitoring, and Evaluation (contd.)

- The *Iterative Process* ensures that even if initial goals established for a program prove to be unachievable, the program may adjust and progress
- This process is necessary to achieve improvements in water quality and aquatic habitats
- The process further supports the documentation of program effectiveness – helpful for annual reporting and regulatory inspection and audit procedures

# Establishing Measureable Goals

- Design objectives or goals that quantify the progress of program implementation and BMP performance
- Three Basic Components
  - Activity to be completed
  - Schedule date of completion
  - Quantifiable target date by which measure progress

# Assessing Stormwater Plan Effectiveness

- Major restoration implementation mechanisms

- MS4s set measurable goals with water quality outcomes

- Water quality outcomes increase local funding potential

- Need low-cost technical and regulatory assistance

Tracking Tool  
Implementation

Results

EPA Stream Assessments

Solution Phase  
"Data Collection"

How is this measured?

Stormwater Management Plan  
Implementation

MS4 Phase 2 Urban waters

Develop & Revise SWMPs

Development  
Stormwater Management Plan

# Annual Reporting

## Annual Reporting

- Status of compliance with permit
- Assessment of appropriateness and effectiveness of BMPs
- Status of identified measurable goals
- Common problem – Annual Reports used to report activities and not analyze data to determine what changes are necessary
- EPA currently developing Annual Report Forms to better document and assess MS4 Progress

# Parting Notes - Food for Thought

- Consequently, the TMDL issue may ultimately drive permitting authorities to write better permits
  - Providing clarity in expectations via permit language
  - Specificity in language to address localized water quality concerns, including TMDLs
  - Better define measurable goals and correlate them to environmental results



# Parting Notes - Next Steps Needed

- Define **Maximum Extent Practicable?** ...at least think about it
- Include permit language to adequately address TMDL concerns, and a means of tracking progress
- Develop permit language that incorporates SWMPs, implementation, timetables, and measureable goals
- Further define what Annual Reports will contain
- Provide tools and better technical assistance to regulated communities
- Correlate this via environmental results and document water quality improvements

# For Additional Information

- NPDES Stormwater Program
  - <http://www.epa.gov/npdes/stormwater>
- Post Construction
  - <http://www.cwp.org/webcast/postconstruction.htm>
- Green Infrastructure
  - [http://cfpub.epa.gov/npdes/home.cfm?program\\_id=298](http://cfpub.epa.gov/npdes/home.cfm?program_id=298)
- TMDLs
  - <http://www.epa.gov/owow/tmdl/>

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