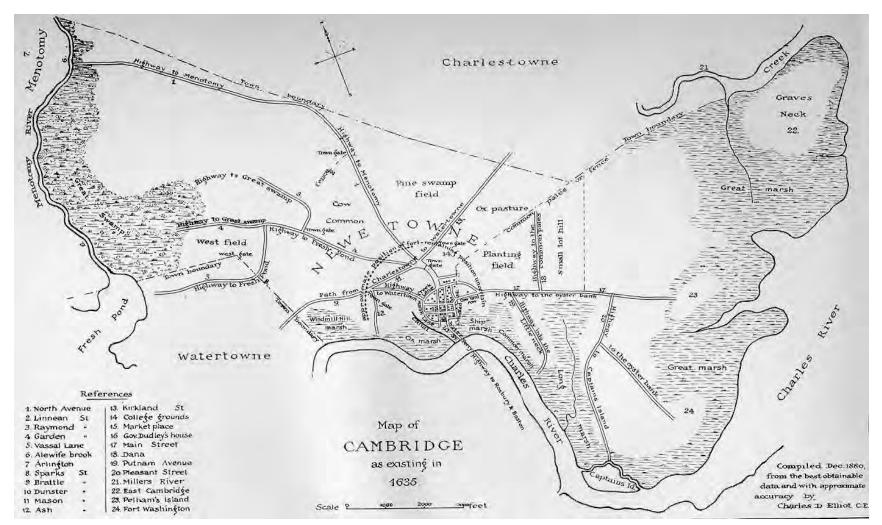
Kendall Square Our Stormwater Challenge April 6<sup>th</sup> 2012

71 1 412 1 2 3

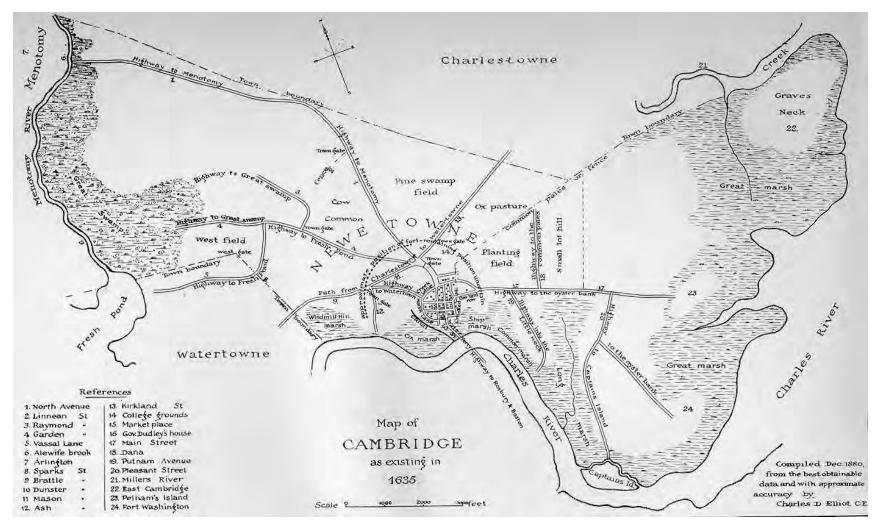


## City of Cambridge 1635





## City of Cambridge 1635





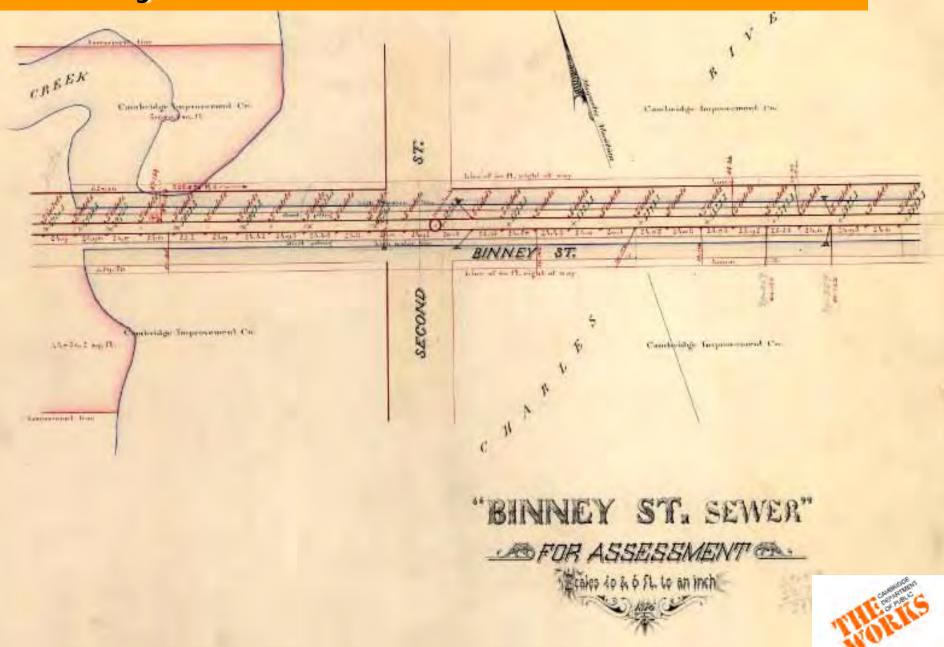
#### Charles River Seawall 1903



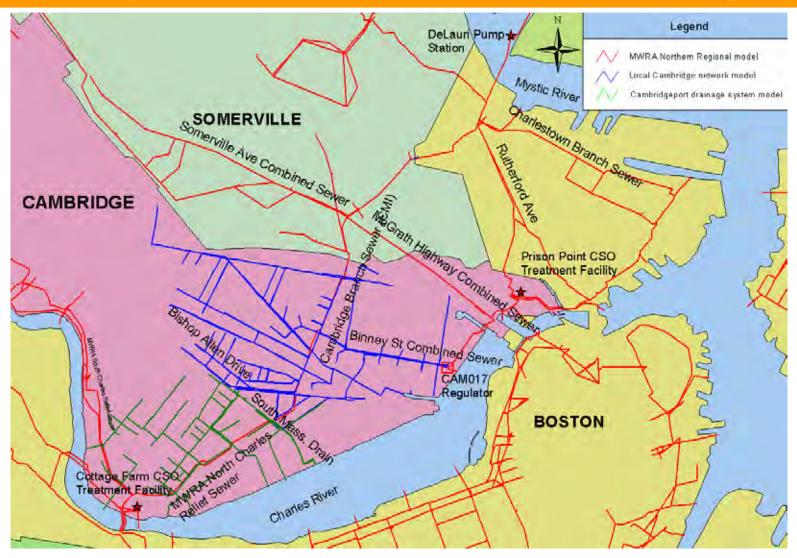
SEA-WALL ON CHARLES RIVER. LOOKING EAST TOWARD MAIN ST.



#### Binney Street Sewer at 2<sup>nd</sup> Street 1876

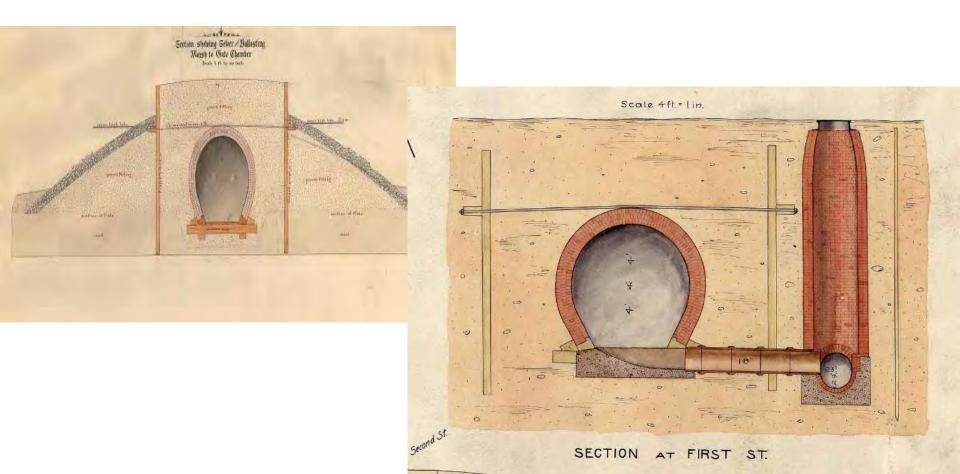


#### **Metropolotian Combined Sewer System**

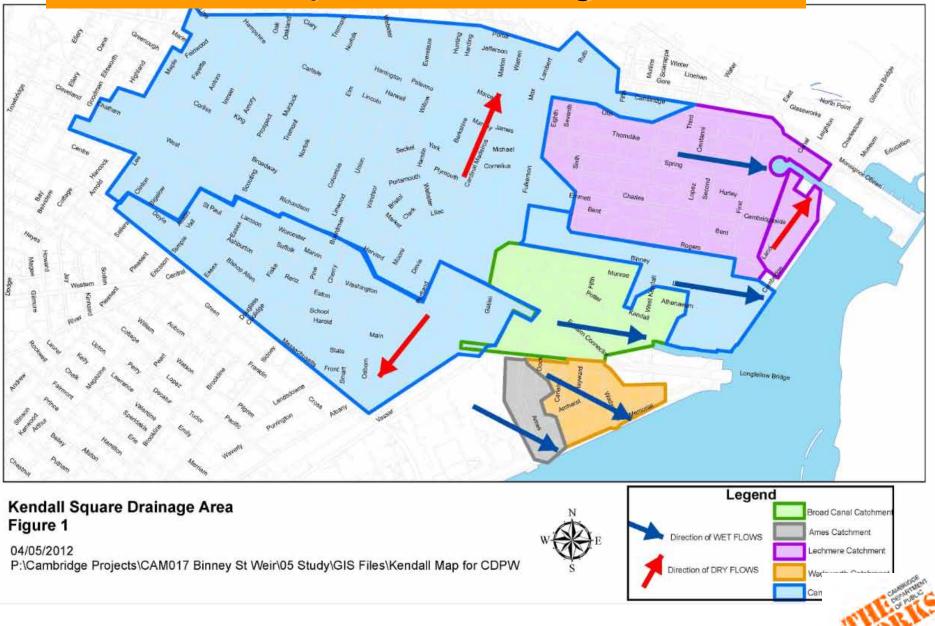




# Binney Street Combined Sewer and Sewer Ststems late 1800s.



#### **Kendall Square Drainage Areas**

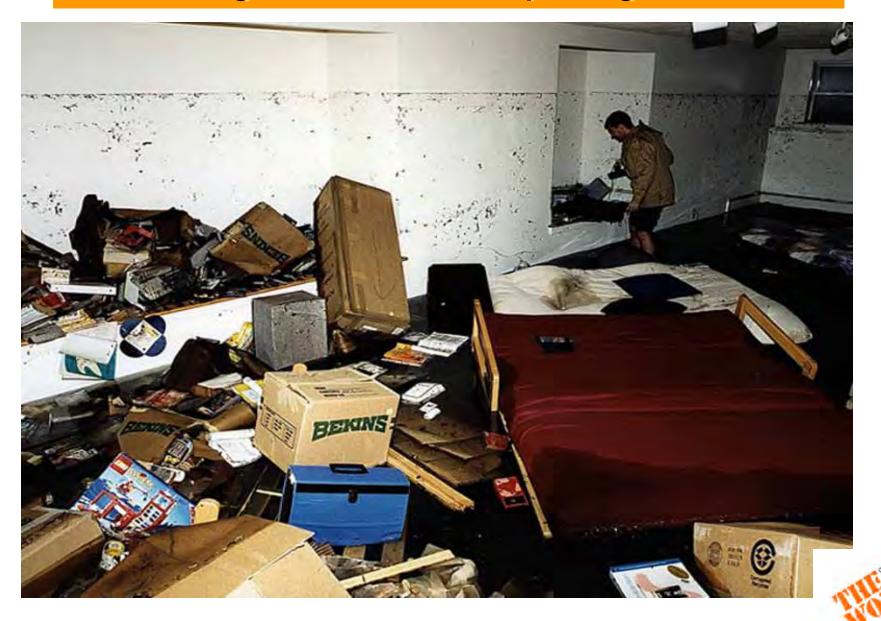


## Broadway July 10<sup>th</sup> 2010

ABORATORY

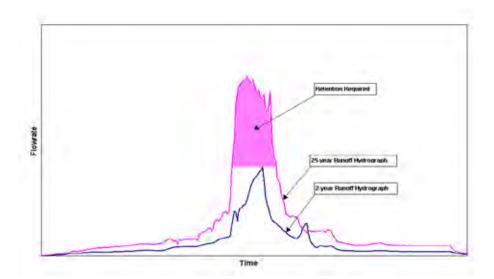


#### Sewer System Back-up July 13 1998



## • Stormwater Quality Control:

- Peak Runoff Management.
- Flood Storage.
- Groundwater Recharge Management.
- Phosphorus management.
- Suspended Solids Management.
- Use of sustainable practices must be prioritized.







## • Sanitary System Control:

- Inflow & Infiltration Removal
- Sewer system storage





## Integrated Approach to Stormwater Management





## Low Impact Development Techniques







#### **The Retrofit Alternative**







## **Future Challenges**





• Climate Change

