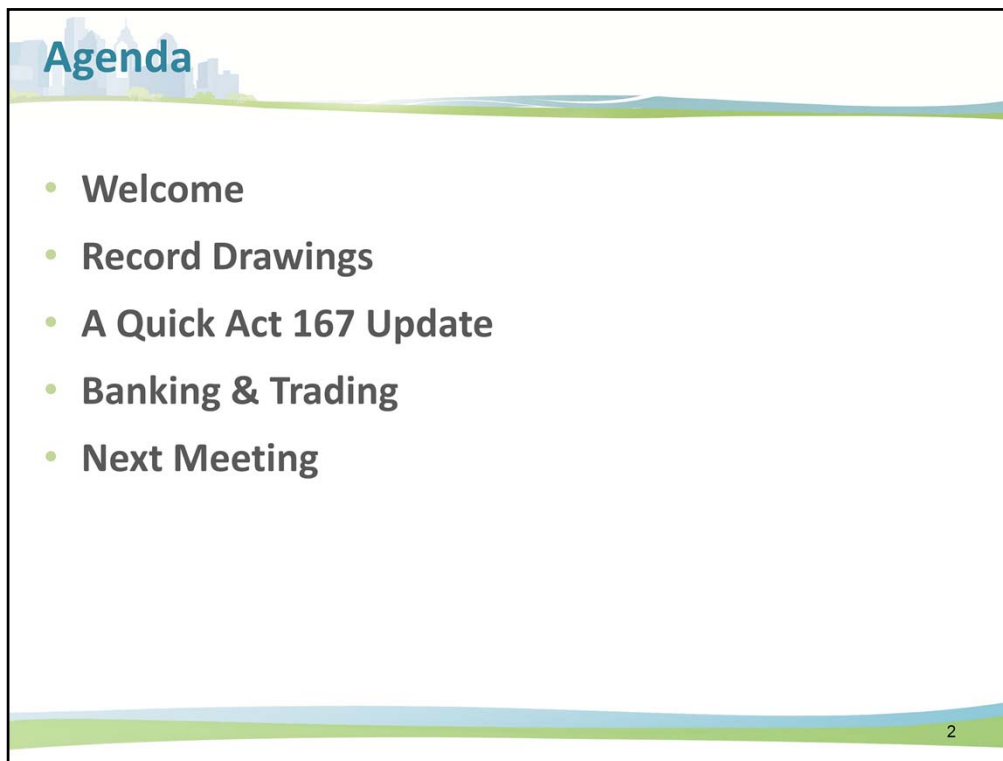


PHILADELPHIA WATER DEPARTMENT

DEVELOPMENT SERVICES COMMITTEE MEETING

June 27, 2013



The slide features a decorative header with a city skyline silhouette and the word "Agenda" in blue. The main content is a bulleted list of five items. The footer contains a small number "2" on the right side.

Agenda

- Welcome
- Record Drawings
- A Quick Act 167 Update
- Banking & Trading
- Next Meeting

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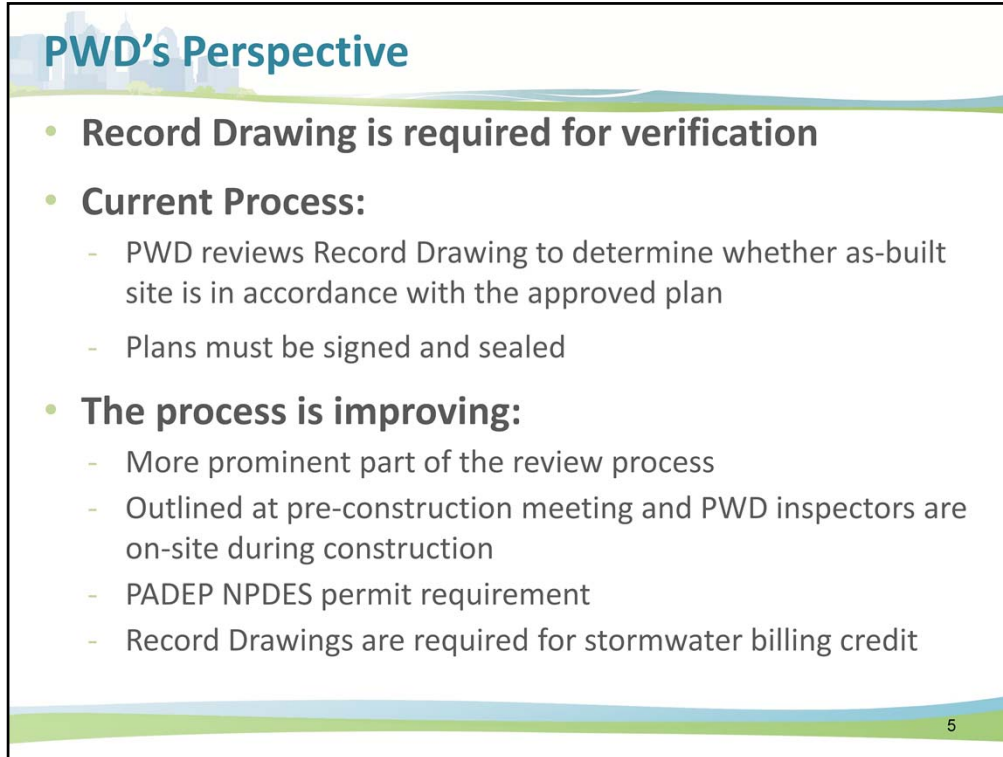


Record Drawings

- **What is it?**
 - Documentation of as-built site conditions

- **Why is it important?**
 - Avoid costly delays and add-ons during construction
 - Necessary for PWD compliance reporting

- **What needs to be done?**
 - More clearly communicate requirements
 - Identify streamlining opportunities



PWD's Perspective

- **Record Drawing is required for verification**
- **Current Process:**
 - PWD reviews Record Drawing to determine whether as-built site is in accordance with the approved plan
 - Plans must be signed and sealed
- **The process is improving:**
 - More prominent part of the review process
 - Outlined at pre-construction meeting and PWD inspectors are on-site during construction
 - PADEP NPDES permit requirement
 - Record Drawings are required for stormwater billing credit

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Record drawings are an important part of PWD's compliance reporting requirements and are a critical tool towards verification of stormwater management practices (SMPs) under the City's Green City, Clean Waters program.

PWD is currently working to more clearly communicate the requirements to the development community and looking for ways to streamline the process.

The record drawing requirement is currently expressed as a signed and sealed as-built drawing. This requirement has been in PWD's regulations since 2006 and is a component of the City's compliance reporting requirements for federal and state regulatory agencies.

Since refining the record drawing requirements and process, PWD has seen improvement. PWD reviewers discuss the requirement with design engineers early on in the review process and the requirements are further outlined at the pre-construction meeting with both the contractor and owner present.

The Pennsylvania Department of Environmental Protection (PADEP) has similar requirements for NPDES Permits. As-built drawings are also a requirement for the PWD stormwater billing credit application.

Record Drawings: What We Heard

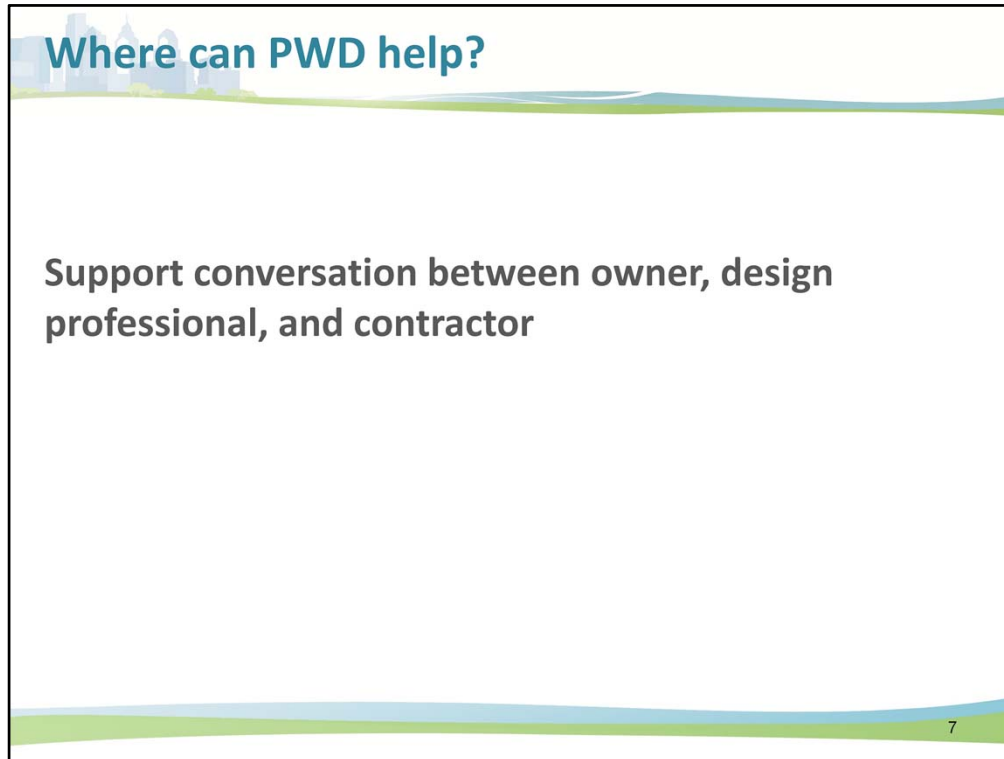
- **Design engineer is not always on-site during construction of SMPs**
 - Cannot certify design changes made by the contractor during construction
 - As-built survey is needed
- **Cost for owner/developer to obtain as-built survey**

Disconnect between owner, design engineer, contractor, and PWD

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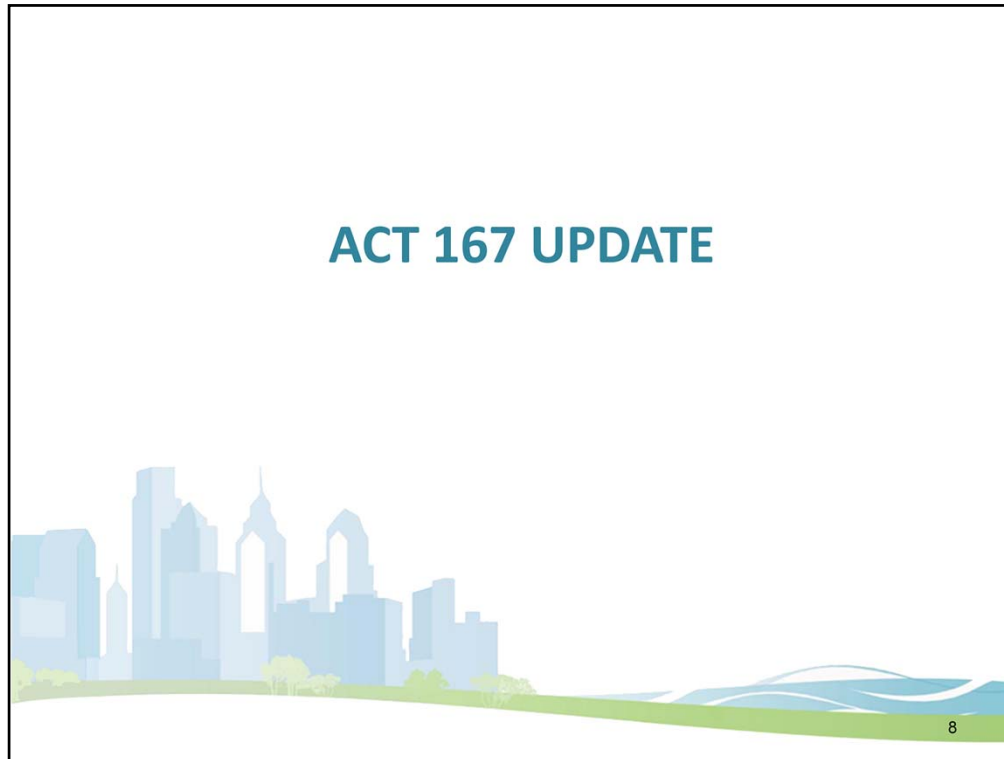
As these requirements have become better known and the development community has become more aware, PWD has seen improvement. However, PWD knows the process can still improve. This topic was introduced at the previous DSC meeting, and the following were “take-aways” from that initial discussion:

- For the design engineer, there are insurance issues and risks. If the owner or developer can't afford an as-built survey, the designer cannot certify the construction due to insurance issues and risks. Further, design engineers cannot certify record drawings if the design was changed by the contractor or dimensions were adjusted in the field without the engineer's approval. In order for the design professional to stamp a drawing, they would require a survey following construction.
- For the owner, they may not anticipate the cost of this additional survey at the onset of the project, resulting in change orders/cost overruns.



PWD would like to better understand, from the DSC's perspective:

1. Where are the problem areas?
2. Where are there misunderstandings and/or miscommunication?
3. What ideas does the DSC have with regard to improving the process?
4. Where can PWD help with the conversation?
5. Where can PWD help improve the process?



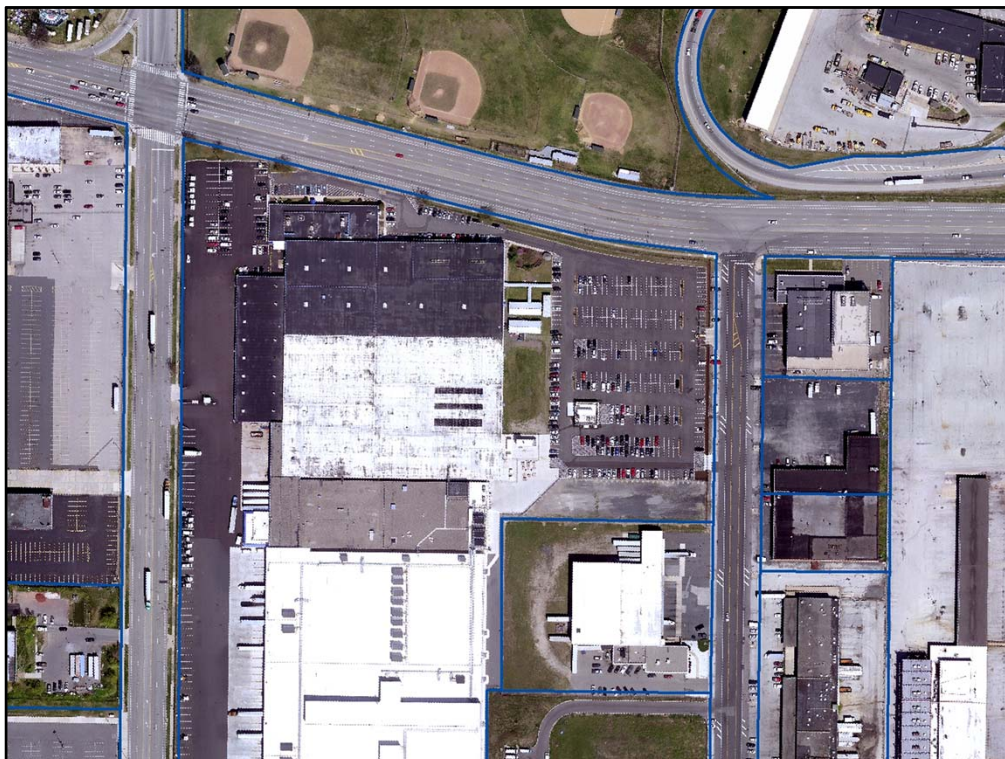
- PWD is still in the process of negotiating the implementation of the Act 167 plans for the Pennypack and Poquessing watersheds with PADEP.
 - Currently, PWD plans to update their regulations to incorporate the Flood Control requirements associated with these plans, as well as the Tacony Frankford watershed, by January 2014.
 - Regarding changes in earth disturbance thresholds and the potential to move from the current 15,000 square foot requirement to 5,000 square feet, PWD is negotiating with PADEP to delay implementation of these components until July 2015 in order to evaluate potential impacts, and to implement the changes appropriately.
 - The specific stormwater management requirements associated with projects between 5,000 and 15,000 square feet of earth disturbance have not yet been determined.
 - Additional information on the Act 167 plan is available on PWD's Department of Watersheds web-site at the following web address:
http://www.phillywatersheds.org/what_were_doing/documents_and_data/watershed_plans_reports
- Public meetings were held to inform the plan development with Philadelphia and surrounding communities.
- Act 167 legislation has been in place since 1978. The State put forth this legislation to create uniformity in stormwater management requirements to make sure all areas of the state are covered.
 - PWD will provide a more in depth look at Act 167 and the potential changes at the next DSC Meeting.



Stormwater banking and trading may offer a potential solution for some of the issues raised around potential changes in the stormwater management requirements.

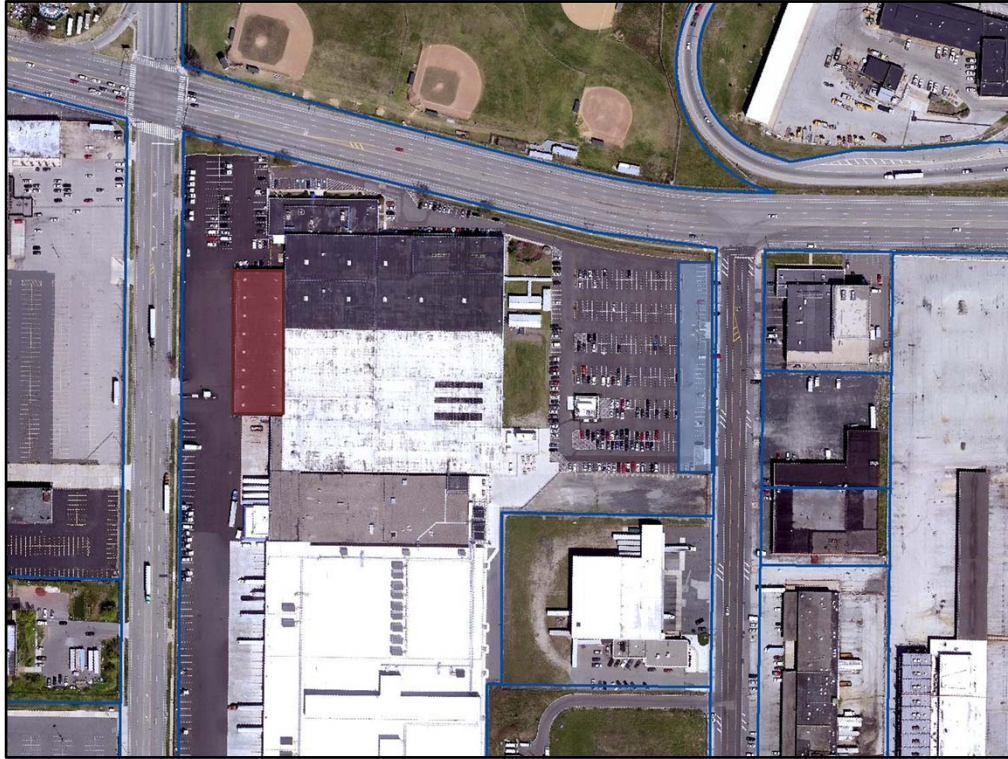
Introduction

- Ability for redevelopment sites to meet stormwater regulations offsite
- Provides an additional option for developers
- Increases PWD's regulatory flexibility
- PWD has allowed certain types of trades:
 - Same Parcel Trading
 - Same Owner Trading
 - Same Owner Banking



Same Parcel Trading Example - Commercial Food Distribution Center

This project utilized same parcel trading in order to meet the stormwater management requirements.



Same Parcel Trading Example - Commercial Food Distribution Center

- The project involved the construction of a new loading dock at a food distribution center.
- The area surrounding the loading dock (shown in **red**) was not ideal for stormwater management.
 - This area did not have good infiltration rates and detention/slow release would need to be utilized.
 - The SMP would have been installed subsurface and would be subject to heavy truck traffic.
- The developer proposed to install an SMP (shown in blue) elsewhere on-site to manage an existing parking lot in lieu of managing the required area.
 - This allowed the developer to meet the stormwater management requirements for the project in an area more conducive to stormwater management and with easier maintenance.
 - In addition, the SMP utilized infiltration rather than detention, which is PWD's preferred approach to SWM.
- PWD is open to this approach on other sites on a project by project basis.



Same Owner Trading Example – Affordable Housing Development

This project utilized same owner trading in order to meet the stormwater management requirements.



Same Owner Trading Example – Affordable Housing Development

In this instance, construction was proposed on two separate parcels as shown in the image. As these parcels are separated by the right-of-way (ROW), they are considered separate projects under PWD's current regulations.

The project work on **Parcel A**, located to the north of the ROW, proposed less than the 15,000 square foot earth disturbance threshold and therefore was exempt from the SWM regulations.



Same Owner Trading Example – Affordable Housing Development

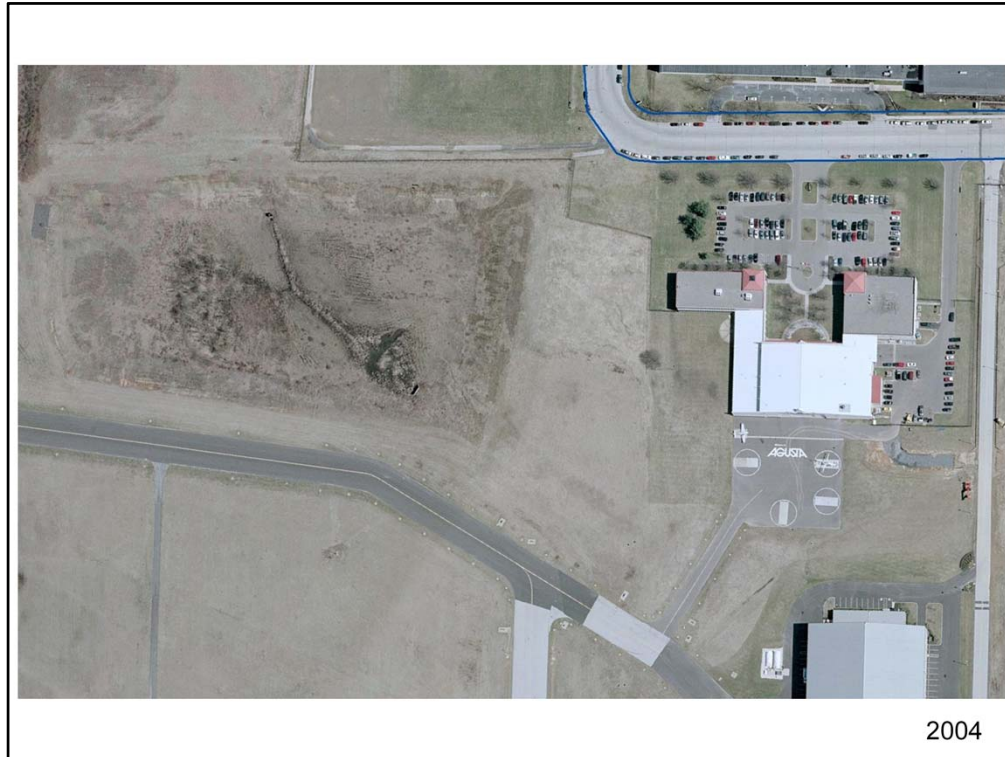
- On **Parcel B** located south of the ROW, the developer could not meet the stormwater management requirements associated with a portion of the roof area (shown in **red**).
- The remainder of the site could be managed by a subsurface SMP located on the parcel as shown in **blue**.
- In order to meet the SWM requirements, the developer proposed to manage the parking lot associated with the exempt project (located on **Parcel A**) on the north side of the ROW with a surface level infiltration SMP (shown in **blue**).
- The unmanaged roof area goes directly to the sewer system.

This is an example of two different sites with the same owner where PWD allowed a trade.

Note: This example was a “1:1 trade” and PWD is looking into whether or not one to one trading is appropriate or if additional area should be managed. This is somewhat similar to wetland mitigation which requires more than one acre of wetland be replaced for each impacted/removed acre.

Same Owner Banking

- Similar to wetland banking
- Allows a developer to oversize an SMP on a parcel, and to connect later parcels to that SMP
- SMP must be constructed with the first phase of development
- Eases review requirements for later parcels



Stormwater Banking Example – Northeast Airport

For this project, located at the Northeast Airport, stormwater banking was utilized to meet the stormwater management requirements associated with a phased construction project. The overall project included renovations, additional parking areas, driveways, a security guard tower and maintenance buildings.



Stormwater Banking Example – Northeast Airport

The initial development, which included the expansion of the parking lot and the addition of the guard tower, is shown in **red**. At the time of construction of this phase, PWD allowed the developer to install an oversized SMP (shown in **blue**) to manage this development as well as what had been planned for future development.



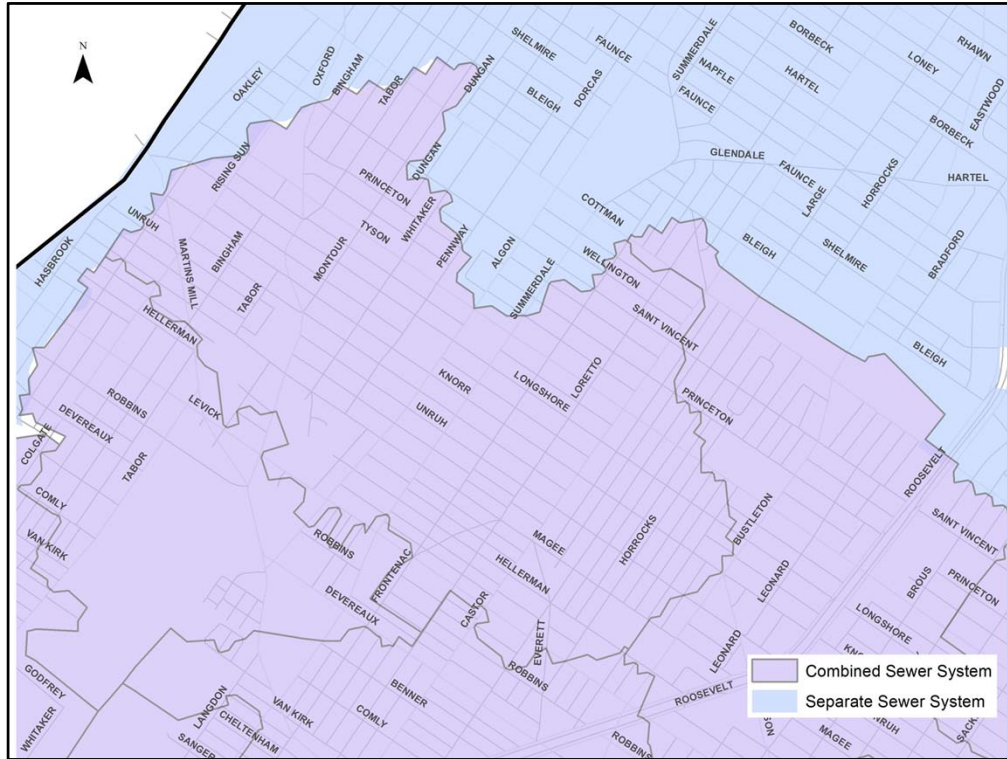
Stormwater Banking Example – Northeast Airport

This image shows the complete development footprint associated with this project in **red**, all of which is managed by the SMP shown in **blue**. With each phase, the runoff from the development was directed to the SMP.

This approach allowed the developer to more easily obtain approval for the second phase of construction as the SMP was sized to meet the stormwater management requirements for the entire project not just each individual phase.

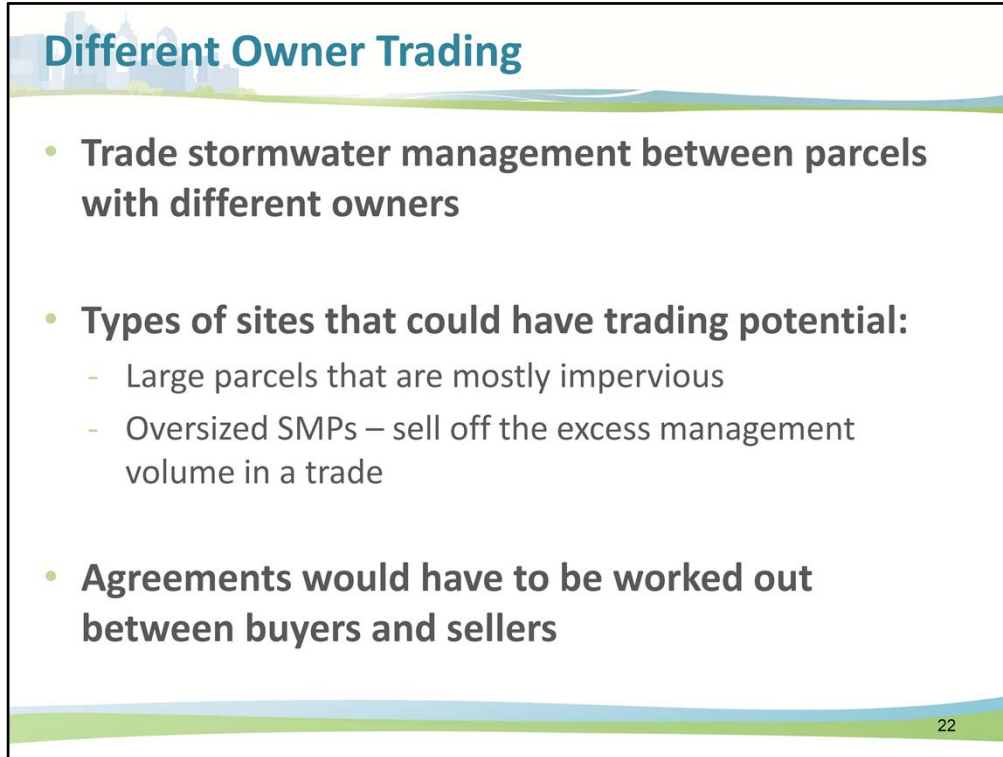
Existing Trade Requirements

- PWD approves these types of trades on a case-by-case basis
- SMPs eligible for trade need to be constructed in advance or concurrently to the regulated project
- Excludes sites with a flood control requirement
- Same parcel trading is PWD's preferred choice
- Require same owner trades to be contained within the same sewershed



Trading Requirement – Same Sewershed

This image is an example of a sewershed map. PWD currently requires that same owner trades be located within the same sewershed. This is based upon the impact on localized infrastructure and the effects on localized flooding issues. Projects are typically constrained by local infrastructure if management isn't effectively dispersed throughout the sewershed. Trades would only be allowed within the same sewershed boundaries as shown.

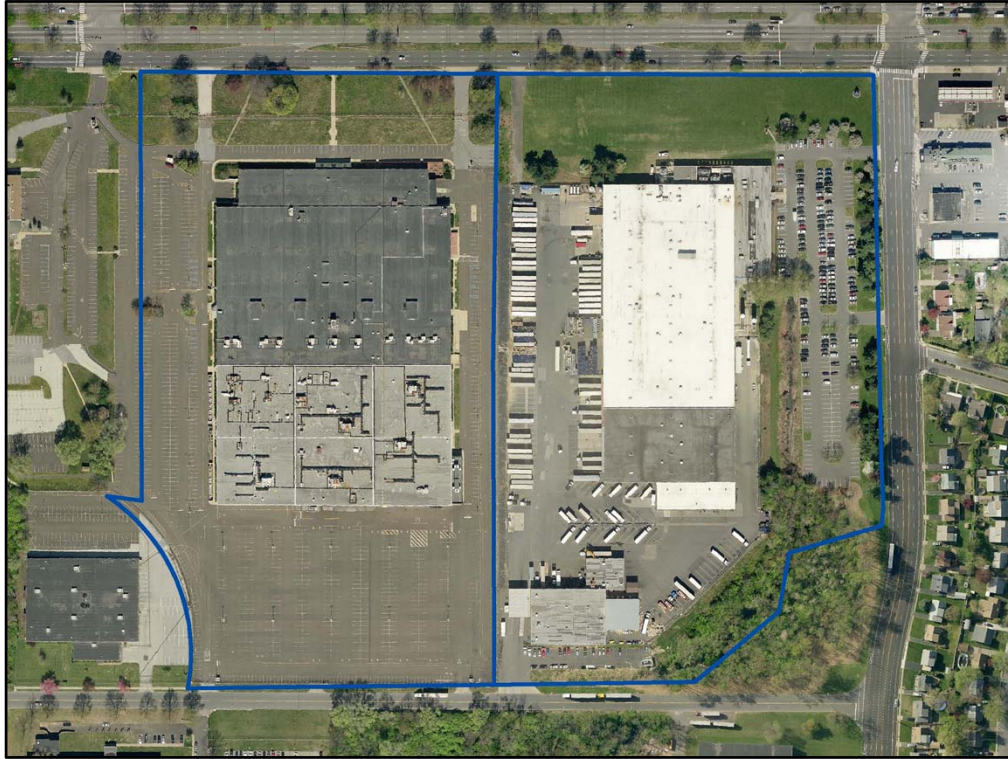


Different Owner Trading

- Trade stormwater management between parcels with different owners
- Types of sites that could have trading potential:
 - Large parcels that are mostly impervious
 - Oversized SMPs – sell off the excess management volume in a trade
- Agreements would have to be worked out between buyers and sellers

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- The first step towards allowing broader trading to meet stormwater management requirements would be to allow trades between parcels with different owners.
- This approach might be most applicable to larger parcels which are mostly impervious and have underutilized areas (such as overflow parking, parking-lot islands, etc) available on-site.
 - If the owner implements stormwater management on their site in excess of requirements at the time of the retrofit (e.g. infiltrate more than the first inch of runoff) the additional management could be “sold” on the market. *Note: this is not currently allowed but is a future policy consideration that PWD may investigate further.*
- In this instance, agreements (both financial and legal) would need to be established between buyers and sellers.
 - PWD would not be involved in this process, except to provide review and approval to ensure that the projects meet stormwater management requirements.



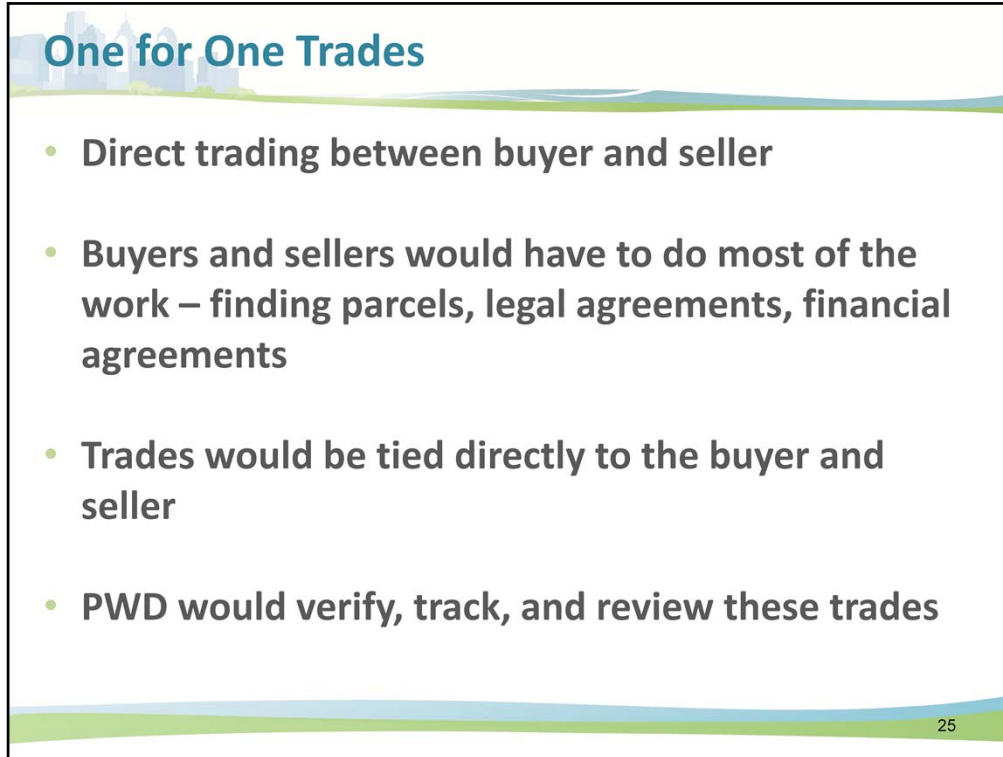
Future Idea: Different Owner Trading - Hypothetical Example

This image illustrates a hypothetical example of a large commercial/industrial facility with no existing stormwater management.



Future Idea: Different Owner Trading - Hypothetical Example

Assuming this facility was built prior to the 2006 Stormwater Regulations, the property owner could retrofit their site to manage runoff from parking areas (such as the areas shown in **red**), or directing roof leaders into a surface level SMP such as an infiltration basin or bioretention area (see areas shown in **blue**). The management of these areas could be sold off to another property owner for their compliance needs.

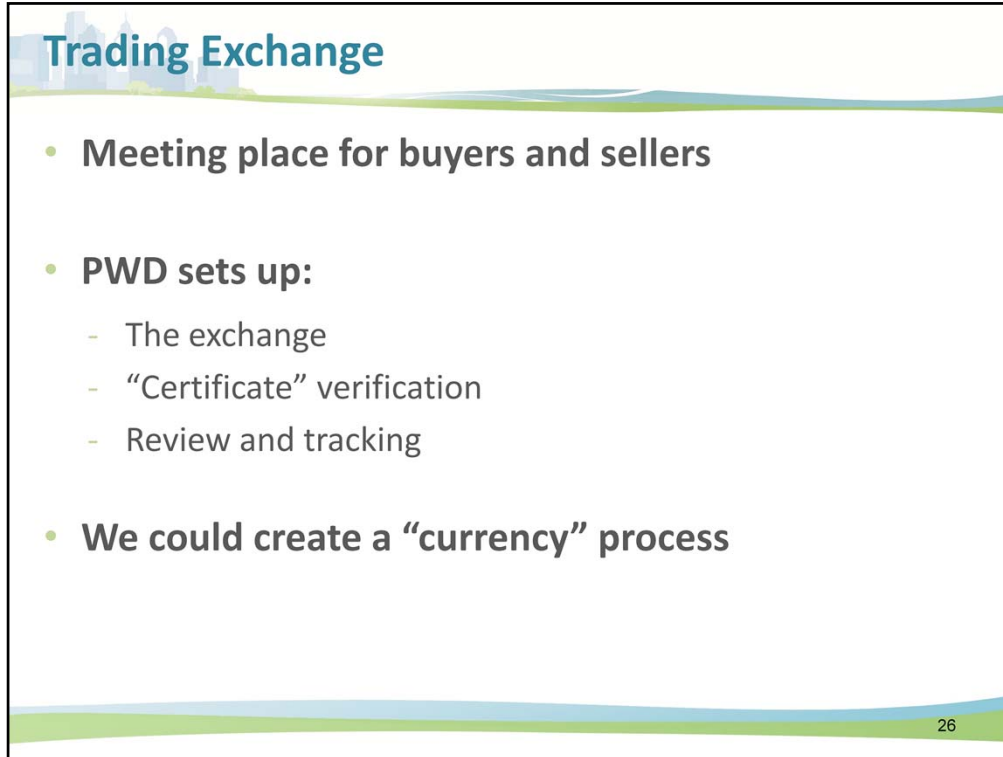


One for One Trades

- **Direct trading between buyer and seller**
- **Buyers and sellers would have to do most of the work – finding parcels, legal agreements, financial agreements**
- **Trades would be tied directly to the buyer and seller**
- **PWD would verify, track, and review these trades**

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- The simplest way in which this approach could work would be direct trading between a buyer and a seller.
- In this instance the buyer would purchase stormwater management from another site in order to meet the SWM requirements (or a portion thereof) associated with development of the property in question.
- Here, the two parties would do the majority of the work and an agreement would be established directly between the buyer and seller.
- PWD would verify, review, and approve the SMP design and construction, as they currently do now with any development project.
- In this model, the buyer has to find a seller.



Trading Exchange

- Meeting place for buyers and sellers
- PWD sets up:
 - The exchange
 - “Certificate” verification
 - Review and tracking
- We could create a “currency” process

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Another trading platform that could be explored is a **Trading Exchange**.

- This is similar to the trading exchanges used for nutrient trading and air pollution emissions.
- With an exchange, PWD could maintain a list of sites interested in trading and provide this information to buyers; essentially helping buyers and sellers to find one another – creating a meeting place.
- This could be made available either by PWD or via a website or similar system.
- These could also include potential sites, meaning properties which could be retrofitted but where the owner does not want to invest money upfront to install an SMP(s) until they have a buyer in place.
- PWD would still serve in a similar role as the one for one trade by verifying, reviewing and approving SMP design and construction.

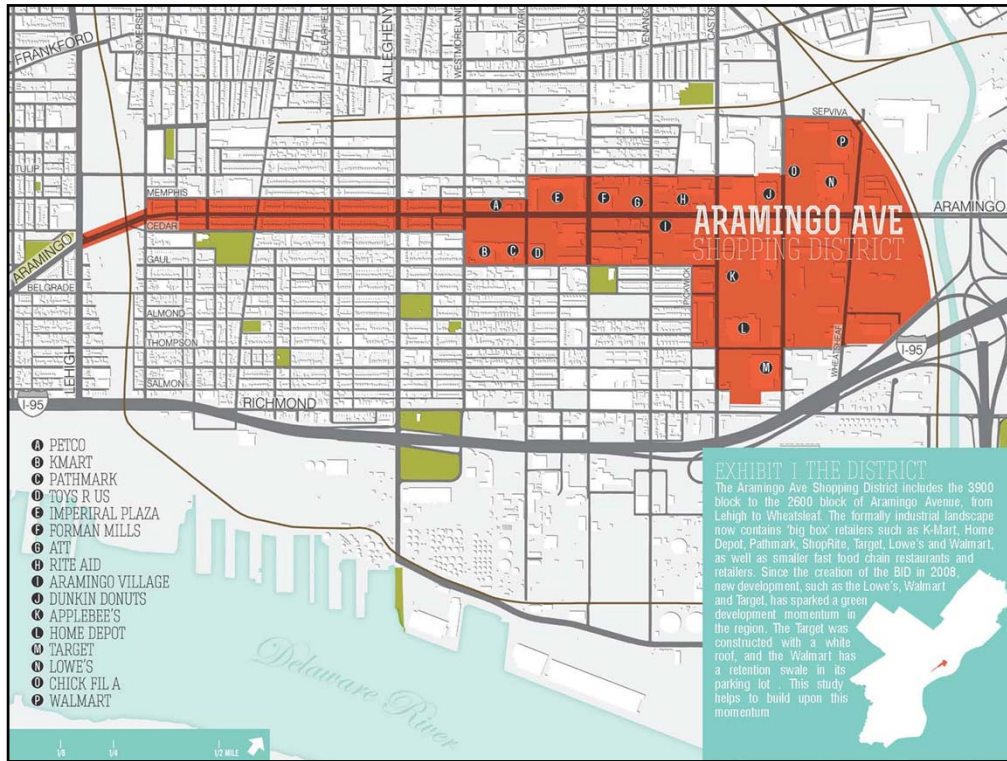


Future Ideas: Stormwater Planning - PIDC Lower Schuylkill Plan Example

Stormwater planning or master planning involves the creation of a master plan for a designated area which includes planned stormwater management systems. This allows the developer(s) to plan out SMPs in advance of any development – these could allow for banking for future development as well as trades between individual sites which might ultimately be owned by separate entities. This approach could be a good fit for large properties with the same owners or larger planning districts with multiple owners. This may also be more attractive and easier for the developer as SWM is planned ahead of development.

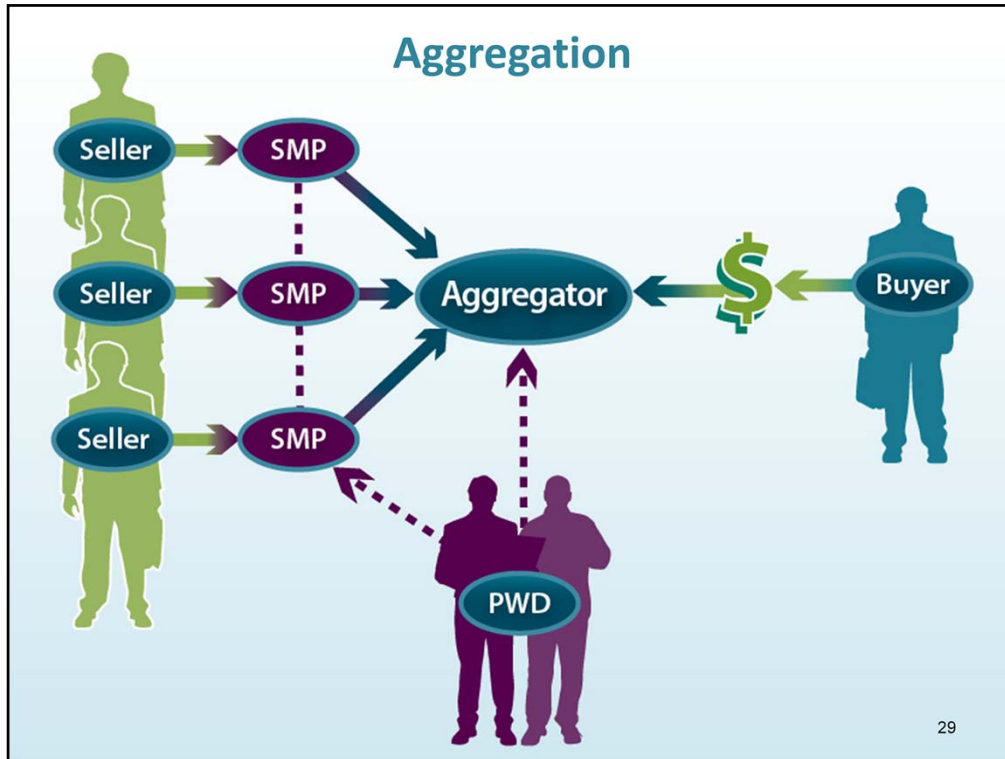
This image is from the **PIDC Lower Schuylkill Master Plan**, which

- Addresses stormwater management across the plan area and includes:
 - 3,700 total acres of land
 - 957 developable acres in the next 22 years
 - With the potential for 80 acres for stormwater management
- Goals for the plan include developing SMPs and managing stormwater in advance of development, meeting stormwater regulations in advance and reducing stormwater billing fees where possible



Future Ideas: Stormwater Planning - Aramingo Avenue Shopping District Master Plan Example

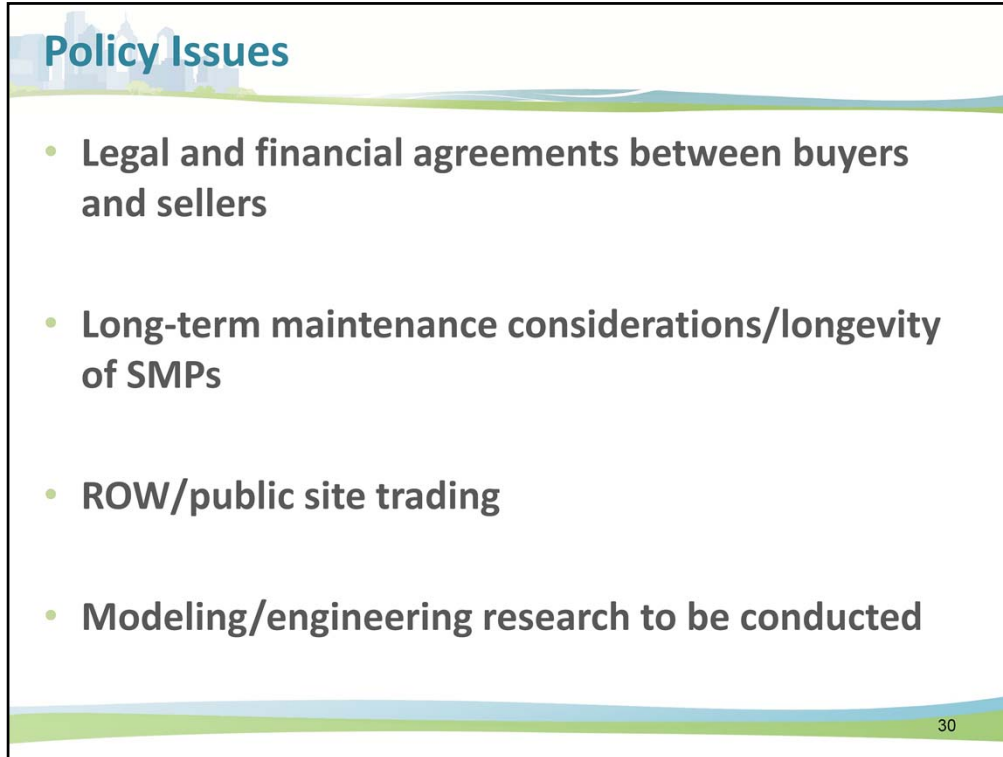
The Aramingo Avenue Stormwater Master Plan, which is being developed on a smaller scale, will allow businesses within the shopping district to bank stormwater management for future development and allow trades amongst parcels. This may entail larger retailers (e.g. Home Depot or K-Mart) installing SMPs which either manage off-site area or over manage their respective sites. SMPs could be installed on available or under-utilized space on these generally larger properties. Any excess management achieved on the larger parcels could potentially be used by smaller more constrained properties within the planned stormwater management area to meet the SWM requirements.



Future Ideas: Aggregation

With the implementation of exchanged based trading, PWD could allow for “aggregation” of SMPs as illustrated in this image.

- With this approach, a “middle man” could be allowed to collect or install SMPs and then package them together to sell to a buyer looking to meet their stormwater management requirements offsite.
- Further variations on this concept would be allowing the aggregator to split SMPs up and sell them off to multiple buyers.
- As this is a more advanced concept/option this will take some time to develop, and PWD is still researching and reviewing how aggregation could potentially work in the City.



Policy Issues

- Legal and financial agreements between buyers and sellers
- Long-term maintenance considerations/longevity of SMPs
- ROW/public site trading
- Modeling/engineering research to be conducted

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Before PWD can formalize current trading policies or develop more advanced trading platforms, a number of policy issues will need to be addressed.

Note: A trading exchange based system has not been widely used to meet stormwater management requirements before and is somewhat untested. Washington, D.C. is currently pursuing a program which will begin on July 1st. An exchange system will be utilized for sites to purchase “stormwater retention credits” which are equal to one gallon of stormwater management credit for a period of one year. Available credits will be listed on an exchange. PWD is closely monitoring D.C.’s program to see how successful a more market-based system can be and to glean lessons learned from the approach.

Next Steps

- Formalize a process for same owner trading
- Create a set of standards for those trades in order to reduce uncertainties and review times
- Gain insight about the process and possibilities for different owner trades
- Keep an open dialogue about other future possibilities

Housekeeping

Next Meeting

- Act 167 Flood Control Updates, Operation and Maintenance Agreements
- September 12th, 8AM

Thank you!