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ASSIGNMENT OF 2013 YDSS SERVICING CAPACITY TO LOCAL MUNICIPALITIES

The Environmental Services Committee recommends:

- 1. Receipt of the presentation by Daniel Kostopoulos, Director, Capital Planning and Delivery, Environmental Services and Heather Konefat, Director, Community Planning, Planning and Development Services; and**
- 2. Adoption of the recommendations contained in the following report dated February 10, 2010, from the Commissioner of Environmental Services and the Commissioner of Planning and Development Services.**

1. RECOMMENDATIONS

It is recommended that:

1. Servicing capacity for 2013 be assigned to the local municipalities, as outlined in *Attachment 1*, and local conditions on approvals be subject to the infrastructure triggers set out in *Attachment 2*.
2. Prior to assigning the 2013 servicing allocation to individual developments, the eight YDSS serviced Local Municipalities will confirm through Council resolutions to:
 - a) In partnership with the Region, agree to determine what constitutes adequate funding and resources to support the reduction of inflow and infiltration (I/I) into wastewater systems with the objective of generating I/I reduction within existing local and Regional systems by:
 - I. Actively participating in a Regional I/I Task Force
 - II. Continuing to seek out the sources of I/I
 - III. Adopting standards and guidelines intended to reduce I/I in new developments and within existing systems, and
 - IV. Developing funding and cost sharing principles to address future remediation projects.
 - b) Continue to support Regional water efficiency plans and policies.
 - c) Endorse and promote participation in both the Sustainable Development Through LEED® program for high-rise residential development and Sustainable Homes Incentive Program (SHIP) for ground related residential development.
3. Staff be directed to report back to Committee with additional details on the I/I reduction program in Q2 2010.
4. The Regional Clerk circulate this report to all local municipalities.

5. The Regional Clerk circulate this report to the Provincial Minister of the Environment.

2. PURPOSE

Report 1 of the January 13, 2010 meeting of Environmental Services Committee (*Attachment 3*) was deferred for further clarification and consultation with the local municipalities regarding the requirements and commitment to reduce inflow and infiltration as well as distribution of allocation in East Gwillimbury, Newmarket and Aurora.

3. BACKGROUND

Consultation with Local Municipal Staff to Clarify I/I Requirements

Consultation with the eight local municipalities serviced by the YDSS has resulted in a better understanding of the short and long term requirements for I/I reduction. Further review of the servicing allocation for the northern municipalities of East Gwillimbury, Newmarket and Aurora was appropriate in recognition of the unique infrastructure requirements of the northern YDSS.

Inflow and Infiltration Reduction is a Joint Responsibility between York Region and Local Municipalities

Sources of inflow and infiltration are not contained in one area or jurisdiction. York Region and the local municipalities have a joint responsibility to reducing I/I. The collective wastewater system in the Region is comprised of approximately:

- 300 km of Regional wastewater sewers,
- 3,000 km of Local Municipal wastewater sewers, and
- 3,700 km of private wastewater sewers (laterals or connections to homes).

Based on current information, private sewers (laterals) are approximately 50% of the system and contribute about 60% of the I/I flows.

The cross boundary implications of inflow and infiltration mean we must continue building on our partnership approach to build and maintain infrastructure for the overall benefit of the residents of York Region.

I/I Reduction is a Priority for the Ministry of the Environment and is part of the Preferred Solution for the South East Collector

The Southeast Collector IEA solution includes the construction of a sanitary trunk sewer, and 10% reduction of peak flows through water efficiency and inflow and infiltration reduction. The reduction of wet weather flows will increase wastewater collections and treatment capacity and improve system security.

4. ANALYSIS AND OPTIONS

Moving Ahead with I/I Reduction 2010-2013 – Local Municipal Expectations in Partnership with York Region

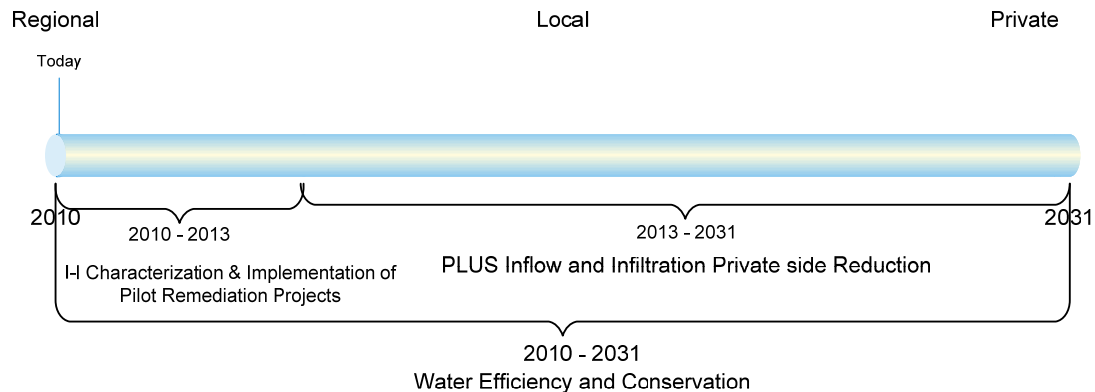
The existing York Region and Local Municipal Inflow and Infiltration Reduction Program will provide the tools necessary to achieve a 10% reduction of wastewater peak flows. \$23 million of Regional funds have been dedicated to developing this pilot program. Deliverables for the short term (2010 to 2013) include:

1. Creation of an I/I Task Force that will guide both the short term program and develop the long term plan for inflow and infiltration reduction. The Task Force will include senior staff from the Region and Local Municipalities.
2. Determination of the sources of I/I through monitoring, studies and analysis,
3. Creation and adoption of standards and guidelines to reduce I/I in both new developments and within existing Regional and Local Municipal systems,
4. Test remediation technologies, complete cost benefit analysis and develop funding and cost sharing principles to address future remediation projects required for implementation over a 20 year timeline.

In addition to the Regional/Local Municipal partnership, it is expected that local municipalities and the Region will move ahead to address sources of I/I within their respective systems. These actions are part of routine Municipal asset management to maintain appropriate levels of service. Regional I/I reduction measures include assessment and remediation of the existing Southeast Collector once the new Southeast Collector is constructed.

20 Year Timeline Required for Accomplishing 10% Reduction of Peak Flows

A 10% reduction in YDSS peak flows is achievable within a 20 year timeframe. This commitment has been made to the MOE as part of the South East Collector IEA solution. It is anticipated that the required investment will be in the order of \$100 million.



Review of Northern York Region Municipalities served by the YDSS

The January 13, 2010 report to Environmental Services Committee included a proposal for 2013 servicing allocation for each municipality served by the YDSS. In the report, it was noted that the three northern municipalities served by the current YDSS have specific infrastructure constraints, and further review of the servicing allocation was appropriate. The Upper York Sewage Solutions (UYSS) is needed to provide additional capacity to the northern portion of the YDSS system and is scheduled to be completed in 2016. Careful management of the capacity up to 2016 is therefore important. Prior to capacity being provided by the UYSS, capacity is specifically limited in the north by the current pumping stations and connecting forcemain capacities in Newmarket and Aurora.

Based on discussions at Environmental Services Committee, which highlighted key regional growth objectives in the northern municipalities such as the development of the Urban Growth Centre (UGC) in Newmarket, staff has reviewed the allocation numbers for the northern municipalities served by the YDSS.

The Region has established two small reserves (2005 and 2012) for the purpose of managing regional priorities (refer to Table 1). The 2005 reserve (6,000 population) was set aside to allow for the provision of servicing conversion of the Holland Landing community (4,148 population), and for non-profit housing across the Region (1,852 population). The 2012 reserve (2,164 population) was added to the original 2005 reserve to ensure there was sufficient reserve available to address regional priorities.

Both Aurora and Newmarket have been assigned conservative 2013 allocation numbers (to date). Staff examined the 2012 reserve to determine if, within the constrained northern municipalities particularly Aurora and Newmarket, there was potential to reassign a portion of the reserve.

An examination of the reserve was completed based on the technical capacity, and also the meeting of regional priorities. On this basis, it has been determined that a portion (528 persons) of the 2012 reserve capacity could be reassigned to these municipalities,

provided the supplementary allocation of 318 population (100 units) for Newmarket, and 210 population (67 units) for Aurora is utilized in a manner that supports key regional objectives particularly intensification and development of the Newmarket UGC. With this reassignment, a residual small reserve of 1,636 population remains that may then be utilized to meet Regional priorities as they arise in the future. Table 1 summarizes the regional reserve with the proposed reassignment.

The East Gwillimbury allocation would continue to be directed through the terms of the executed prepaid development charge credit agreement.

Table 1:
Regional Reserve Summary (Population)

	Regional Priorities	Non-profit Housing	Holland Landing Lagoon Conversion	2012 Reserve Proposed Assignment	Totals (population)
2005 Reserve Commitments		1,852*	4,148		6,000
2012 Reserve Additional Top Up	2,164		0	(528)	1,636

* 352 persons of servicing allocation has been assigned to date for non-profit housing projects

5. FINANCIAL IMPLICATIONS

Further assignment of allocation to local municipalities allows appropriate development approvals to move forward which is important to permit local municipalities to construct both intensification projects and complete existing communities.

Implementation of inflow and infiltration reduction measures requires financial commitments from both the Region and local municipalities. Through ongoing Regional I/I reduction program, Regional Council authorized detailed flow monitoring and a pilot project program to help direct the \$23 million that the Region has allocated for the Inflow and Infiltration Reduction program in the 10-year capital plan. The Region and its local municipalities will need to allocate adequate additional funding and resources to implement I/I reduction programs for Regional and local systems.

The I/I Task Force, consisting of both Regional and Local Municipal senior staff, will develop funding and cost sharing principles to address future remediation projects required for implementation over a 20 year timeline. Adequate funding and resources will be required to implement I/I reduction programs for local systems.

6. LOCAL MUNICIPAL IMPACT

Beyond the original consultation outlined in Section 6 of *Attachment 3*, additional consultation with local municipalities was undertaken to further clarify the report recommendations and I/I implementation plan.

Assignment for 2011 and 2012 was provided on the condition that local Municipalities agreed to fully participate in I/I reduction and water conservation programs, and endorse sustainable development incentive programs. Delivering on this commitment is essential for providing servicing allocation for the year 2013 prior to completion of the Southeast Collector Sewer.

7. CONCLUSION

Servicing allocation for 2013 is important to ensure the Region's growth objectives can be met. In order to provide this servicing allocation to the local municipalities, inflow and infiltration reduction is critical. Partnership between the Region and Local municipalities will ensure that together, a more efficient infrastructure is achieved, that supports sustainable growth in keeping with Provincial legislation, the Regional Official Plan and Local Official Plan policies.

For more information on this report, please contact Daniel Kostopoulos, Director, Capital Planning and Delivery, Environmental Services at Extension 5070, or Heather Konefat, Director, Community Planning at Extension 1502.

The Senior Management Group has reviewed this report.

(The three attachments referred to in this clause are attached to this report.)

2013 Proposed Local Municipal Distribution of Servicing Capacity

Municipality		Proposed Additional YDSS Allocation 2013
	Population	Units**
Aurora*	1,252¹	400
East Gwillimbury*	1,500²	500
King (King City)	465	150
Markham	11,259	3,292
Newmarket*	1,590³	500
Richmond Hill	6,625	2,064
Vaughan	12,377	3,651
Stouffville	1,788	600
Total	36,328	±10,990

* allocation will continue to be monitored and remains constrained until implementation of Upper York Servicing Solutions

** this will vary depending upon the unit type allocated to and the municipality in which the allocation is used

¹ minimum of 210 persons allocation to be used for intensification

² subject to the terms of the Queensville/Holland Landing/Sharon Pre-paid Development Charge Credit Agreement

³ minimum of 318 persons allocation to be used for intensification

Servicing Requirements by Municipality (Infrastructure Trigger Table)

To Service Additional Population of 36,000 beyond the December 2008

Allocation served by the YDSS

(in addition to all existing servicing requirements as outlined in the June 23, 2005, October 31, 2007 and December 18, 2008 Council Reports for servicing 1,042,000 persons)

As of January 2010

Municipality	Conditions and Infrastructure Required	Targeted Timing for Completion (Year & Quarter)	Proposed Earliest Triggers for Presales in Draft Plans of Subdivision	Earliest Presales Timing for Draft Plans of Subdivision	Earliest Registration Timing
Aurora East Gwillimbury Markham Newmarket Richmond Hill King Vaughan Whitchurch-Stouffville	- Approval of Southeast Collector Sewer IEA - Southeast Collector Sewer - Duffin Creek WPCP - YDSS Flow Control Structures	Q4 - 2013 Q4 - 2010 Q2 -2010	2 years prior to in service date (Q4/11) 1 year prior to in service date (Q4/09) 1 year prior to in service date (Q2/09)	December 2011	June 2012
Vaughan (Woodbridge Service Area served by Humber P.S) (up to 3,500 persons)	- Duffin Creek WPCP - YDSS Flow Control Structures	Q4 – 2010 Q2 - 2010	1 year prior to in service date (Q4/09) 1 year prior to in service date (Q2/09)	Q4 – 2009	Q2 – 2010

Clause No.1 in Report No. 1 of the Environmental Services Committee was adopted, without amendment, by the Council of The Regional Municipality of York at its meeting on January 21, 2010.

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ASSIGNMENT OF 2013 YDSS SERVICING CAPACITY TO LOCAL MUNICIPALITIES

The Environmental Services Committee recommends:

- 1. Receipt of the presentation by Daniel Kostopoulos, Director, Capital Planning and Delivery, Environmental Services Department and Heather Konefat, Director, Community Planning, Planning and Development Services Department; and**
- 2. Deferral of the recommendations contained in the following report dated December 14, 2009, from the Commissioner of Planning and Development Services and the Commissioner of Environmental Services to the February 10, 2010 Environmental Services Committee meeting.**

1. RECOMMENDATIONS

It is recommended that:

1. Servicing capacity for 2013 be assigned to the local municipalities, as outlined in *Attachment 2*, and local conditions on approvals be subject to the infrastructure triggers set out in *Attachment 3*.
2. Prior to assigning the 2013 servicing allocation to individual developments, the eight YDSS serviced Local municipalities will confirm through Council resolutions to:
 - a) In partnership with the Region, commit adequate funding and resources to implement critical programs to reduce inflow and infiltration (I/I) into wastewater systems with the objective of generating I/I reduction:
 - i) Within existing local and Regional systems, and
 - ii) Within new development areas by adopting a series of new Region-wide sewer design and commissioning standards being developed in partnership with local staff within 3 months after their release.
 - b) Continue to support Regional water efficiency plans and policies.
 - c) Endorse and promote participation in both the Sustainable Development Through LEED® program for high-rise residential development and Sustainable Homes Incentive Program (SHIP) for ground related residential development.
3. Staff be directed to report back to Committee with additional details on the I/I reduction program in Q2 2010.

4. The Regional Clerk circulate this report to all local municipalities.
5. The Regional Clerk circulate this report to the Provincial Minister of the Environment, Minister of Municipal Affairs and Minister of Energy and Infrastructure.

2. PURPOSE

Given that the Southeast Collector Trunk Sewer Individual Environmental Assessment (IEA) has experienced a one year delay, the purpose of this report is to request local municipalities to partner with the Region in mitigating additional risk to the York Durham Sewage System (YDSS) servicing capacity to enable assignment of 2013 servicing allocation to the local municipalities served by the YDSS.

3. BACKGROUND

Key infrastructure in the YDSS, including the Duffin Creek Water Pollution Control Plant (WPCP) and Southeast Collector Trunk Sewer provide servicing capacity for approximately 90% of the Region

In June 2005, Regional Council committed all of the existing YDSS sewage servicing capacity for a population of 970,000 to the local municipalities subject to specific infrastructure being completed. A regularly updated “trigger table” outlines infrastructure required in each municipality and estimates completion dates. A small Regional reserve was set aside within this commitment, primarily for the Holland Landing Lagoons being decommissioned, with the balance set aside to facilitate non-profit housing projects.

Servicing Capacity Assigned to Local Municipalities for 2011 and 2012

Additional servicing capacity of 72,000 people (over and above the YDSS system capacity of 970,000 people identified in 2005) was made possible through three flow control gates to be installed in the Leslie Street, Ninth Line and Sixteenth Avenue trunk sewers. Installation of these gates extend sewage servicing capacity in the YDSS by attenuating peak wet weather flows that occur during storm events where additional flow from rain or snowmelt enters the collection system. These flow control structures will help to bridge the gap until the new Southeast Collector is completed and accommodate the additional 2011 and 2012 servicing allocation requirements.

This 72,000 person servicing allocation for 2011/12 was provided to local municipalities on the condition that the local municipalities:

- Partner with the Region through programs co-ordinated by Environmental Services to reduce infiltration and inflow into wastewater systems.
- Continue to participate in Regional water efficiency plans and policies that implement and support the Water for Tomorrow program.
- Partner with York Region to participate in water system leakage reduction programs as they are developed and implemented.

Allocation through 2012 is subject to Completion of YDSS Flow Controls and the Duffin Creek Stage III Expansion

Construction of YDSS flow control structures is on track for completion in May 2010. The Duffin Creek WPCP liquid treatment expansion remains on schedule for completion in December 2010, which will increase the WPCP's current capacity to 520 MLD and provide the required capacity for committed servicing allocation. The solid process expansion will be completed in 2012, but this does not affect committed servicing allocation.

The Ministry of Environment (MOE) has also now confirmed that rehabilitation of the existing WPCP (Stages 1 and 2) is required as a condition of approving the Certificate of Approval (Air) for the current Stage 3 expansion works. These rehabilitation works will require partial shutdown of existing Stage 1 and 2 operations, resulting in temporarily reduced treatment capacity as low as 470 MLD, which is just sufficient to meet the projected flow required for 2013 allocation. Staff is currently reviewing implementation requirements for these works and is negotiating with MOE to secure approval of a work plan that accommodates adequate interim treatment capacity and achievable implementation timeframes. The initial outcome of these negotiations have been positive and will have further updates in Q1 2010.

With sewage treatment capacity available in December 2010, the limiting factor for 2013 allocation becomes the YDSS conveyance system (including the Southeast Collector).

Southeast Collector Trunk Sewer now scheduled for commissioning late 2013

An extensive Individual Environmental Assessment (IEA) process has been undertaken for the new Southeast Collector (SEC). As reported to Environmental Services Committee in November, the review and alternative location for the Odour Control Facility has caused a one year delay in the EA process. Subject to receipt of IEA approval by Minister of the Environment (MOE) in Q1 2010, it is expected that the new Southeast Collector sewer will be commissioned by December 2013, rather than December 2012 as previously reported.

Given the Southeast Collector delay, more stringent measures are necessary to ensure forecast growth can be accommodated in 2013 prior to the SEC completion. These measures will establish a comprehensive framework for improved efficiency, conservation and moving the infrastructure completion forward. Allocation for 2013, therefore is dependant upon:

- Reducing Inflow and Infiltration (I/I).
- Promoting more sustainable development to reduce sanitary sewage flows.
- Continuing to press the Province to provide the approvals necessary to begin construction of the Southeast Collector.
- Accepting potentially higher risk

2013 Servicing Allocation Allows Region and local municipalities to maintain a 4 year supply of servicing

Providing an additional one year assignment of allocation, combined with the previous assignments, maintains a 4 year supply of servicing to the local municipalities facilitating growth to the end of 2013. This supports achieving the Provincial Policy Statement requirement for municipalities to maintain a 3 year supply of serviced residential lands which are appropriately zoned, draft approved or registered, and the 3-7 year supply of draft approved and/or registered lots required in the Regional Official Plan.

To move forward with these actions and provide further allocation, it is critically important that local Councils endorse these conservation initiatives and direct resources to implement these actions in partnership with the Region.

Continue to move to a higher level of sustainable servicing practices and development

A higher emphasis on sustainable water and wastewater systems, through I/I reduction measures and development incentive programs to provide more efficient buildings, is in keeping with both the direction of the Region's Sustainability Strategy and recently adopted Master Plan for Water and Wastewater. Specific components of the Water and Wastewater Master Plan and the Sustainability Strategy are intended to assure that the Region's water and wastewater works and services meet "the needs of the present without compromising the ability of future generations to meet their own needs" and are based on the triple bottom line measures of healthy communities, economic vitality, and a sustainable natural environment.

4. ANALYSIS AND OPTIONS

PROVIDING SERVICING CAPACITY FOR GROWTH IN 2013

Further servicing allocation to the local municipalities requires I/I reduction by both the Region and local municipalities

Committed capacity assignment up to the year 2012 totals 1,042,000 people. Proposed additional assignment of 36,328 people represents an increase of approximately 3.5%.

Capacity assignment of 970,000 people for growth up to the year 2010 has fully utilized the capacity of the SEC. Subsequent capacity assignments of additional 72,000 for growth in 2011 and 2012 were made available through installation of the above-noted Flow Control System in the YDSS. While the Flow Control System helps to attenuate peak flows and mitigate surcharge downstream, it causes surcharge in the sewers immediately upstream of the flow control gates. Additional servicing allocation to local municipalities means accepting a higher level of system overflow risk over a 12 month period, particularly for the surcharged system upstream of the flow control gates.

Detailed hydraulic analysis has been carried out to assess the risk implication of the increased capacity assignment. Results of the analysis indicated that before the addition of 36,000 people to the system, SEC will experience no surcharge immediately downstream of Boxgrove under a 25-year storm with the Flow Control system. With the inclusion of additional 36,000 people, surcharge behind the proposed Flow Control system on Leslie Street, Ninth Line and Sixteenth Avenue Sewers will increase marginally, if no surcharge condition is to be maintained immediately downstream of Boxgrove. The analysis determined that the surcharge should not pose an unacceptable overflow risk, however, it is important that the risk be limited to a 12-month exposure period and be further mitigated through concerted I/I reduction efforts by all eight local municipalities serviced by the YDSS.

Reduction of I/I is not only required for the reduction of system overflow risk prior to the completion of the SEC, but is also essential to ensure long term system security and to meet increasingly stringent regulatory requirements. Recent uncharacteristic weather events with high intensity rainfall coupled with snowmelt have caused more high flow events in the YDSS and, in some cases, by-passes to the environment. Flow attenuation through the use of flow control gates reduces operational redundancy in the YDSS and does not entirely remove the additional risk associated with higher flows. Actual flow reduction through minimizing I/I remains the best option to manage system risks prior to completion of the SEC and ensures long term system protection.

Inflow and infiltration reduction has been an integral part of servicing considerations by York Region since the first Water and Wastewater Master Plans in 1997. The 2001 YDSS Master Plan update specifically identified “water conservation/extraneous flow reduction” as a significant design consideration for all YDSS projects. The I/I reduction program was stepped up further in 2007 with Regional Council approving a commitment of \$23 million in the 10-year capital plan with ongoing efforts by both Regional and local staff regarding implementation.

To this end, it is recommended that the 2013 allocation be subject to:

- No allocation or pre-sales for individual developments be permitted prior to the approval of SEC Individual Environmental Assessment by MOE.
- Full support of local municipalities to adequately resource and implement I/I reduction and water conservation programs in partnership with the Region.
- Servicing triggers that provide for building permits that result in occupancy starting no earlier than 1 year prior to completion of the SEC.

Reducing risk through Inflow and Infiltration reduction in existing developed areas

Inflow and infiltration refers to water that enters the sanitary sewer system as rainwater, snowmelt or groundwater. Inflow refers to storm water that enters the systems from points of direct connection such as faulty manhole covers or roof leaders connected to the sanitary sewer. Infiltration refers to groundwater that enters the system through cracks or faulty joints in the pipes.

The integrated Regional and local municipal wastewater conveyance system is comprised of approximately 3300 kilometres of sewers, with at least 75% of the length of pipe under the jurisdiction of the local municipalities. The importance of local municipal commitment to inflow and infiltration in existing developed areas is therefore critical to success in I/I reduction.

A certain amount of I/I is unavoidable and is accounted for in routine sewer design. However, when I/I exceeds design allowances, sewer capacity is consumed and usually results in overflows and increased conveyance and treatment costs or a reduction in the future population service capacity.

York Region initiated a comprehensive I/I reduction program in 2008 starting with extensive monitoring. Over one hundred flow meters were strategically located in the wastewater systems across York Region in all municipalities to assess the areas with highest I/I. This study resulted in a focused I/I pilot program in areas showing the highest incidents of increased flow due to I/I sources.

It is important that both local municipalities and the Region make I/I reduction a high priority. Sanitary sewer evaluation studies by local municipalities started in the summer of 2009 to narrow down the sources and potential remedies for I/I. These studies are funded by the Region through the I/I pilot program.

With completion of these detailed studies and subsequent implementation of pilot remediation plans, a full suite of I/I reduction measures will be tested and available for all local municipalities to utilize in their ongoing asset management programs. A report to Environmental Services Committee in Q2 2010 will provide additional details on this program including I/I program recommendations for local municipalities and the Region.

It should be noted that there are examples of ongoing I/I reduction programs including: the Towns of Newmarket and Aurora repairing manholes and conducting smoke testing to correct illegal sewer connections, Town of Markham's program to disconnect downspouts and discharge roof drainage onto grassed areas (rather than into the sanitary sewers), and the Town of Richmond Hill's ongoing program of sewer relining and rehabilitation.

Reducing Inflow and Infiltration from new development areas

New sanitary sewers are designed and constructed according to guidelines provided by the Ministry of the Environment. In some instances, clean water flow has been observed entering the Regional Trunk Sewers that cannot be explained through regular household or business uses. To ensure that new developments are constructed to a standard that will not allow inflow and infiltration to occur, a series of best practice guidelines and specifications for the design, construction and commissioning of sanitary sewers in new developments beyond the MOE guidelines are needed.

The American Society for Testing and Materials (ASTM) and Ontario Provincial Standards and Specifications (OPSS) has a number of different standard practices for infiltration acceptance testing of installed sewers. The standards and guidelines address both new connections to Regional and Local Municipal sewers (i.e. manholes and pipes) and sewer laterals installed for home connection. ASTM and OPSS standards provide the basis for Region wide standards. There is no additional cost in developing these standards as the proposed Region wide standards are based on established industry standards. The Region will continue to support this program with supplementary guidelines developed as required. As these design and commissioning standards are developed with local staff and are released by the Region, it is expected that local municipalities will adopt them within three months of release as a best practice. Ongoing discussions with the local municipalities will continue to ensure there is a workable implementation of any new standards.

Northern York Region Municipalities serviced by the YDSS have unique infrastructure requirements including the Intra-basin Transfer and Upper York Sewage Solutions

Intra-Basin Transfer

Growth in Aurora, Newmarket and East Gwillimbury requires additional lake-based water supply from Lake Ontario. Water transfer from Lake Ontario watershed to Lake Simcoe watershed where these three municipalities are located is regarded as "intra-basin transfer". The Province is currently in the process of developing intra-basin transfer regulations, as part of the process to implement the 2005 *Great Lakes-St. Lawrence River Basin Sustainable Water Resources Agreement*. In the meantime, York Region submitted a Permit to Take Water application to the Province in December 2008 requesting an intra-basin transfer volume up to 105 MLD from Lake Ontario to accommodate the growth

need of the three municipalities through 2036. Until such time as the new regulation is in place and/or the Province approves the requested transfer volume, capacity assignment to Aurora, Newmarket and East Gwillimbury has the potential to be impacted by the Province's decision on the permitted transfer amount. A report to Environmental Services Committee on January 13, 2010 entitled "*Great Lakes Intra-Basin Transfer Application and Policy Advocacy*" provides further details.

Upper York Sewage Solutions

Build out of the existing urban areas in Aurora, Newmarket and East Gwillimbury as well as future whitebelt areas in East Gwillimbury require additional sewage servicing capacity. An Individual Environmental Assessment is underway for the Upper York Servicing Solution (UYSS) project with the Terms of Reference filed with the MOE in November 2009. Subject to the IEA outcome and approval, the project is anticipated to be completed in 2016. There is capacity in the existing system to meet forecast growth with careful management until the completion of the UYSS in 2016. Delays in the provision of this key infrastructure could impede meeting the growth objective and forecasts for our northern YDSS serviced local municipalities. Provision of servicing capacity to the three northern YDSS municipalities will be subject to the interim capacity available prior to completion of the UYSS and is under review as noted on *Schedule 2*.

Infrastructure Options to provide capacity to servicing growth in short term

Following the completion of the Duffin Creek Stage 3 expansion, conveyance capacity of SEC is the main system constraint. West Vaughan is currently serviced primarily by the Peel sewage system with excess flow directed to Duffin Creek WPCP via the Humber Pumping Station. In order to mitigate system constraint at SEC, staff had discussions with Peel Region staff to temporarily increase York Region's flow diversion to Peel prior to completion of SEC. In a letter dated December 3, 2009, Peel Region advised that they can accept higher flows from York Region from 2013 to 2015, up to a maximum increase of 3 MLD above the permitted 2013 flow stipulated in York-Peel Sewage Servicing Agreement. This capacity increase permits additional developments in West Vaughan, without adding more flows to the SEC or Duffin Creek WPCP. It is determined that up to 3,500 of the 32,572 persons capacity the Region assigned to Vaughan for growth between 2011 and 2013 could be used by the City towards allocation to the West Vaughan area and could proceed in advance of the new existing SEC.

Localized flow attenuation systems have been proposed by local municipalities and developers to advance capacity assignments. These proposals will be assessed on their individual effectiveness and impact on Regional system including the interim treatment capacity during rehabilitation of Stages 1 and 2 of the Duffin Creek WPCP. SEC overflow risk depends on the rate of flow as well as the volume of flow through the system during a storm event. Flow control systems reduce peak flow rate by retaining sewage flow during peak and releasing it during off-peak time, but they do not reduce the sewage volume. As such, generally they do not entirely eliminate the increased risk

brought forth by additional serviced population. It is recommended that advancement of 2013 capacity assignment through these proposals should only be considered after approval of the SEC IEA is secured.

Partnerships with local municipalities to reduce water use and wastewater production through sustainable practices

In June 2007, Regional Council endorsed the Sustainable Development through LEED® program. The program provides additional residential servicing allocation of 25 to 40% as an incentive to encourage more sustainable high density development. A similar program (the Sustainable Home Incentive Program) was introduced in 2009 providing a 10 to 20% servicing allocation incentive for sustainable ground related residential development.

Together, these two programs have the cumulative benefit of creating a full range of sustainable housing in all residential building categories within the Region with less water use and wastewater production for each unit.

As directed by Regional Council, municipalities can explore opportunities for further incentives beyond these two programs by introducing municipal-wide, comprehensive water and wastewater saving measures and sustainable building programs. Currently, East Gwillimbury is exploring this option and developing a program that will require that all new residential, industrial, commercial and institutional buildings meet stringent higher sustainable building standards. These municipal-wide programs will need to be approved by Regional Council, and upheld and implemented through local resources and policies.

At a minimum, the participation of all local municipalities in the two Sustainable Housing Programs will assist in further reducing the water use and wastewater production in each unit, both high-rise and ground related. A resolution from the local Council endorsing the programs is required for individual developers to participate in the program.

Servicing Triggers to facilitate appropriate timing of growth are tied to infrastructure delivery

Infrastructure triggers specific to the 2013 allocation are proposed which provide for occupancy starting January 2013 subject to IEA approval of the SEC. Under this proposal, the risk is limited to the one year 2013 period. The draft plan of subdivision pre-sales, registration and highrise site plan approval triggers will be scheduled accordingly as illustrated in *Attachment 3*.

The construction period for the Southeast Collector is approximately 3 years. A substantial amount of construction would be completed at the time frame proposed for

first occupancies. It should be noted that the Region has a very good record of completing complex projects on time, once construction has begun.

Relationship to Vision 2026

The continued management of servicing allocation achieves goals of Visions 2026 in many aspects as it supports the objective of taking a strategic approach to growth management through more deliberate direction for future development which is co-ordinated with efficient infrastructure delivery.

5. FINANCIAL IMPLICATIONS

The further assignment of allocation to local municipalities allows appropriate development approvals to move forward which is important to maintain a sufficient pool of approvals and avoid processing challenges when servicing allocation becomes available. The allocation of servicing capacity permits the local municipalities to construct both intensification projects and complete existing communities.

The implementation of inflow and infiltration reduction measures requires financial commitments from both the Region and the local municipalities. Through the ongoing Regional I/I reduction program, Regional Council authorized retaining the consulting firm of AECOM Canada Ltd. to provide flow monitoring for three years in June 2009. This will help direct the \$23 million that the Region has allocated for the Inflow and Infiltration Reduction program in the 10-year capital plan. This program is funded 93% from development charges and 7% from wastewater rates. The Region has committed to fully funding this program through the study and pilot project stage to final full scale recommendations. Local municipalities will need to allocate adequate funding and resources to implement I/I reduction programs for local systems. A cost sharing strategy will be developed for additional remediation works.

6. LOCAL MUNICIPAL IMPACT

Local municipal staff were consulted regarding the proposed assignment of 2013 allocation and some modifications, that maintained the established principles for allocation, were incorporated into the recommended assignments. In addition, presentations were made to the municipal Planning Directors/Commissioners group, the local municipal Public Works Liaison Committee, and the municipal Chief Administration Officers group. There was considerable discussion and input from these various sessions.

The full participation of local municipalities in I/I reduction and water conservation programs, and endorsement of the sustainable development incentive programs are essential for providing servicing allocation for the year 2013 prior to the completion of the Southeast Collector Sewer.

Local municipalities will continue to allocate to individual developments based upon their servicing protocols which identify growth priorities for each municipality.

7. CONCLUSION

The servicing allocation for 2013 is important to ensure growth objectives of the Region can be met. In order to provide this servicing allocation to the local municipalities, inflow and infiltration reduction is critical. Partnership between the Region and Local municipalities will ensure that together, a more efficient infrastructure is achieved, that supports sustainable growth in keeping with Provincial legislation, the Regional Official Plan and Local Official Plan policies.

For more information on this report, please contact Heather Konefat, Director of Community Planning at Ext. 1502 or Daniel Kostopoulos, Director, Capital Planning and Delivery at Ext. 5070.

The Senior Management Group has reviewed this report.

(The three attachments referred to in this clause are attached to this report.)

Environmental Services Committee

2013 Capacity Assignment for YDSS Service Area

Daniel Kostopoulos
Director of Capital Planning

Heather Konefat
Director of Community Planning

February 10, 2010

February 10, 2010

Recent Updates

- Report to Environmental Services Committee – Jan 13, 2010
Deferred to address:
 - Further clarification and consultation needed regarding I/I reduction
 - Conservative capacity assignment for Aurora and Newmarket
- Presentation to Planning & Economic Development Committee - Feb 3, 2010
- Revised report to Environmental Services Committee today to address issues raised Jan 13, 2010

February 10, 2010

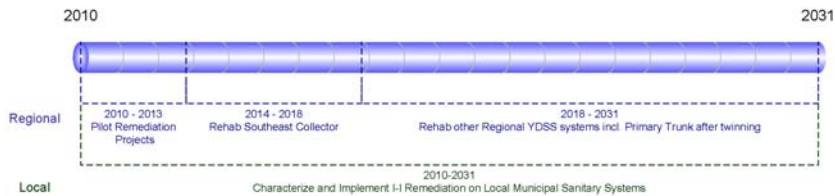
2013 Capacity Assignment for YDSS Area

2

Timeline for I-I Reduction



- Careful management of system flows through I-I reduction and flow control gates will mitigate risk prior to SEC commissioning



20 Year Timeline to Reduce Peak Wastewater Flow by 10%

February 10, 2010

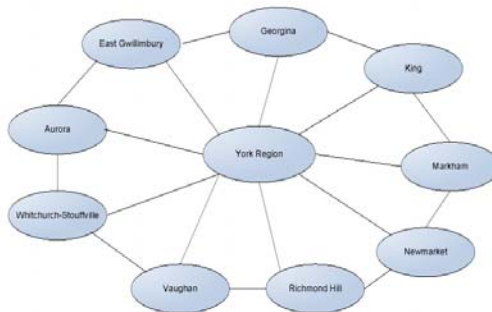
2013 Capacity Assignment for YDSS Area

3

Moving forward to Reduce I-I Together



York Region and Local Municipal Inflow and Infiltration Reduction Task Force



Senior Management Public Works Engineering and Planning

Team dedicated to making decisions and ensuring the reduction of I-I becomes and remains a priority

Mandate

- Continue to seek out the sources of inflow and infiltration (3,000 km Local & 300 km Regional of w/w pipe)
- Adopt standards and guidelines intended to reduce I-I
- Develop funding and cost sharing principles
- 20 year timeline to reduce peak wastewater flow by 10%

Consultation with Local Municipalities on 2013 Allocation Report resulted in commitment to work together to reduce I-I

February 10, 2010

2013 Capacity Assignment for YDSS Area

4

Proposed 2013 Servicing Capacity



Further consultation with northern YDSS municipalities, technical assessment of the small regional reserve and regional priorities – led to revised recommended allocation assignment

Municipality	Revised 2013 Assignment of Capacity	
	(population)	(units)
Aurora	1,245 (revised)	400 (revised)
East Gwillimbury	1,500	500
King City	465	150
Markham	11,259	3,292
Newmarket	1,590 (revised)	500 (revised)
Richmond Hill	6,625	2,064
Stouffville	1,788	600
Vaughan	12,377	3,651
YDSS Region	36,328	10,990

February 10, 2010

2013 Capacity Assignment for YDSS Area

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Next Steps



- Servicing Capacity for 2013 to be assigned subject to:
 - Southeast Collector IEA Approval
 - Occupancy in 2013 (1 year prior to completion of the Southeast Collector)
 - Moving forward to Reduce I-I Together
- Regional and Local municipalities to work together on I and I reduction through a collective task force
- Report back to Environmental Services Committee in Q2-2010 with additional details and cost estimates on I-I Reduction programs

February 10, 2010

2013 Capacity Assignment for YDSS Area

6

- **Questions?**

February 10, 2010

2013 Capacity Assignment for YDSS Area

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Planning and Economic Development Committee

2013 Capacity Assignment for YDSS Service Area

Daniel Kostopoulos and Heather Konefat

Director of Capital Planning and Delivery

Director of Community Planning

February 3, 2010

February 3, 2010

Key Messages



- 2013 allocation is achievable with conditions
- Reducing Inflow & Infiltration is a shared challenge between all nine Local Municipalities and the Region
- Partnership approach is vital to success

Report to Environmental Services Committee on February 10 2010

YDSS and Local Sewage Collection Systems



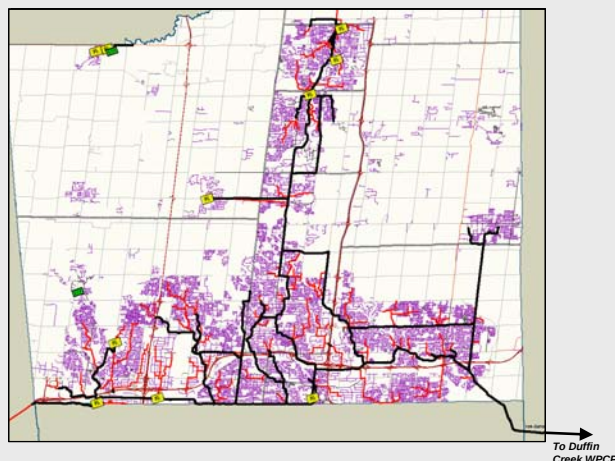
Two-tiered Sanitary Sewage System

• Region

- Conveyance (Major Trunk Sewers)
- Treatment

• 8 Local Municipalities

- Local conveyance from Residences and Businesses to Regional System



Over 3,300 Linear Km of sewers – 3,000 under Local Municipal & 300 under Regional jurisdiction

2011 and 2012 Allocation



- Prior to twinning the SEC Design Capacity of the YDSS will be reached by end of 2010
- Design capacity for growth in 2011 and 2012 is made available by installing three Flow Control Gates
- Construction of the three Flow Control Gates is underway with completion on track for May 2010



In-Line Storage via Flow Control Gates Enables 2011 & 2012 Allocation

February 3, 2010 2013 Capacity Assignment for YDSS Area Presentation to Planning Committee

11

Challenges to 2013 Allocation



- Desire to accommodate additional growth for 2013
- Capacity constraints exist in the YDSS to permit 2013 Allocation driven by:
 - Delay in IEA approval of the Southeast Collector (SEC)
 - Inflow and Infiltration (I-I)
- Careful management of system flows through I-I reduction and flow control gates will help manage operating risk prior to SEC commissioning

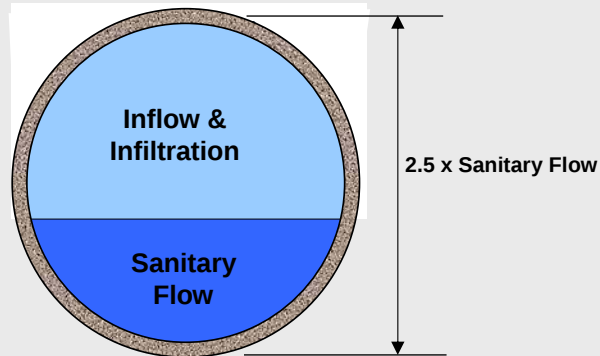
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System Capacity



- System design allows for increased flows during wet weather events (rain, snow melt) due to I-I.
- Pipes and Water Pollution Control Plants have capacity for 2.5 times sanitary flow



YDSS is designed to accommodate some Inflow & Infiltration (up to 2.5 times sanitary flows)

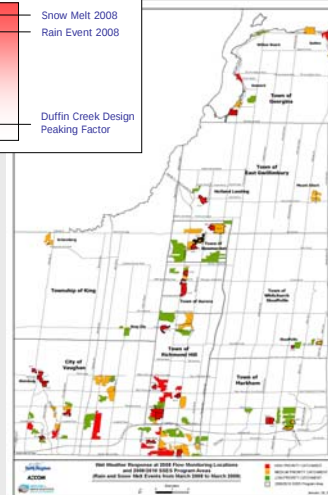
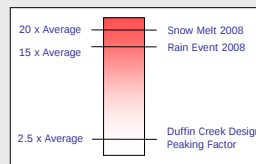
Range of Peak Flows in the YDSS



Peak flows range from 6 to 35 times the average dry weather flow

Peak flows are affected by:

- Age and condition of system
- Amount of snow pack
- Combined rain/snow melt
- Climate Change /Severe Weather

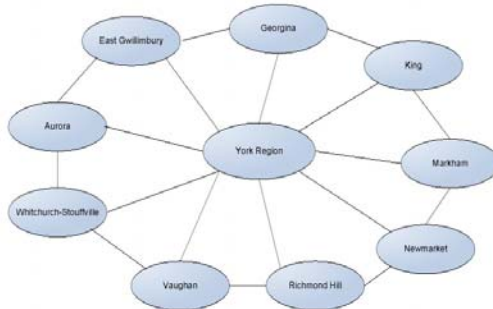


Planning for Peak Flows and Climate Change is critical for system security

Moving forward to Reduce I-I Together



York Region and Local Municipal Inflow and Infiltration Reduction Task Force



Senior Management Public Works Engineering and Planning

Team dedicated to making decisions and ensuring the reduction of I-I becomes and remains a priority

Mandate

- Continue to seek out the sources of inflow and infiltration
- Adopt standards and guidelines intended to reduce I-I
- Develop funding and cost sharing principles

Consultation with Local Municipalities on 2013 Allocation Report resulted in commitment to work together to reduce I-I

February 3, 2010 2013 Capacity Assignment for YDSS Area Presentation to Planning Committee

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Moving Forward with Servicing Capacity



- Methodology utilized to determine assignment of servicing capacity to each municipality based on:

Assessment of three growth indicators:

- 10 year historical building permit average
- 5 year historical building permit average
- Forecasted growth

Assessment of system capacity

- More deliberate actions on I/I reduction contributes to goal of sustainability



- Allows planned growth to move forward

- Communication & consultation with local partners



February 3, 2010 2013 Capacity Assignment for YDSS Area Presentation to Planning Committee

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Proposed 2013 Servicing Capacity



Further consultation with northern YDSS municipalities, technical assessment of regional reserve and regional priorities – led to revised recommended allocation assignment

Municipality	Revised 2013 Assignment of Capacity	
	(population)	(units)
Aurora	1,245 (revised)	400 (revised)
Newmarket	1,590 (revised)	500 (revised)
King City	465	150
Markham	11,259	3,292
East Gwillimbury	1,500	500
Richmond Hill	6,625	2,064
Vaughan	12,377	3,651
Stouffville	1,788	600
YDSS Region	36,328	10,990

Critical Triggers for Release of 2013 Servicing Capacity in YDSS



- Approval of Individual Environmental Assessment by MOE for Southeast Collector (anticipated Spring 2010) for municipal allocation to individual developments.
- Occupancy no earlier than one year prior to completion of the Southeast Collector (i.e. Occupancy in 2013)
- Support of local municipalities to adequately resource and implement I-I reduction and water conservation programs, in partnership with the Region, through ongoing consultation.



- Questions?

Inflow and Infiltration Video



[Inflow Video](#)
[Infiltration Video](#)

I-I Primarily from Local Collection Systems



Aging Infrastructure

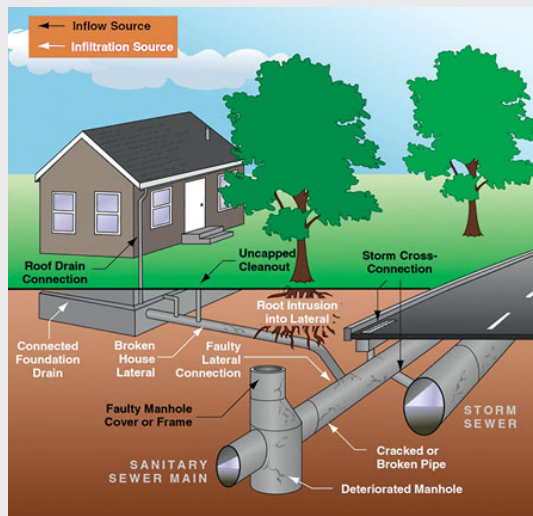
- Cracks, breaks

Historic Building Practices

- Roof and foundation drain connections
- Cross connections from storm sewers

Newly Built Systems

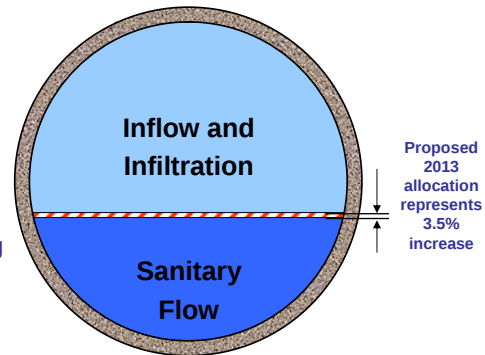
- Increased inspection required
- Uniform Local and Regional design and commissioning standards required



Opportunity to Increase Capacity through I-I Reduction



- Together the Region and Local Municipalities can reduce I-I by:
 - Adopting more stringent design and commissioning standards for new development
 - Repairing deteriorated or deficient infrastructure in existing developed areas identified with high I-I in an ongoing manner of asset management



3.5% capacity increase through I-I reduction accommodates 2013 allocation

February 3, 2010

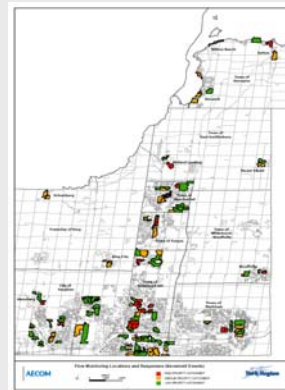
2013 Capacity Assignment for YDSS Area Presentation to Planning Committee

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Results of Flow Monitoring



- 36 areas (30%) classified as high priority
- 22 areas (18%) classified as medium priority
- 63 areas (52%) classified as low priority
- Peak I-I Rate, infiltration rate and instantaneous peaking factor were used as main criteria during analysis.



121 priority areas have been identified to date, representing about one third out of 3,300 km of municipal sanitary sewer system in the Region

February 3, 2010

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Methodology to Establish Allocation Limits

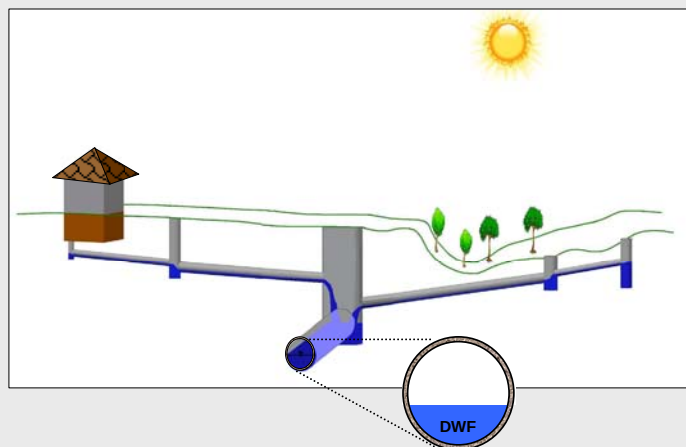


Municipality	10 Year Building Permit Average 1999-2008 (units)	5 Year Building Permit Average 1999-2008 (units)	Forecast average 2011-2016 (units)
Aurora	465	333	480
East Gwillimbury	93	108	600
King City	75	44	280
Markham	3,292	3,243	2,640
Newmarket	565	596	400
Richmond Hill	2,064	1,698	1,720
Vaughan	3,651	2,928	2,600
Stouffville	439	706	800
YDSS Region Total	10,644	9,656	9,520

Water Levels in sewers are greatly impacted by I-I



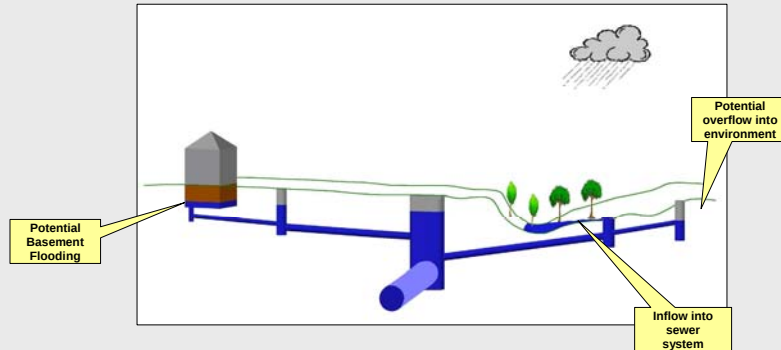
During normal **dry weather** conditions, water level in the YDSS is low.



Water Levels in sewers are greatly impacted by I-I



- If the majority of the Region generates I-I above design allowances, there is potential that sewage will backup to basements and overflow into environment.
- It is critical to bring areas with high I-I (6 to 35 x DWF) down to more reasonable levels.



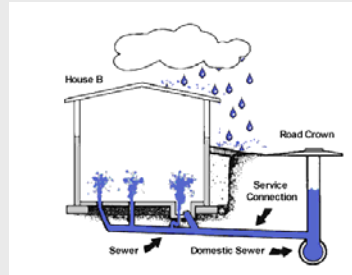
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2013 Allocation is Contingent on Inflow and Infiltration Reduction



- Allocation for 2013 is conditional on actions by local municipalities and the Region to reduce I-I flows.
- Inflow and infiltration reduction is essential to:
 - Meet regulatory requirements
 - Reduce overflow risk and avoid basement flooding



February 3, 2010 2013 Capacity Assignment for YDSS Area Presentation to Planning Committee

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High Flows- Aurora and Newmarket February, 2009



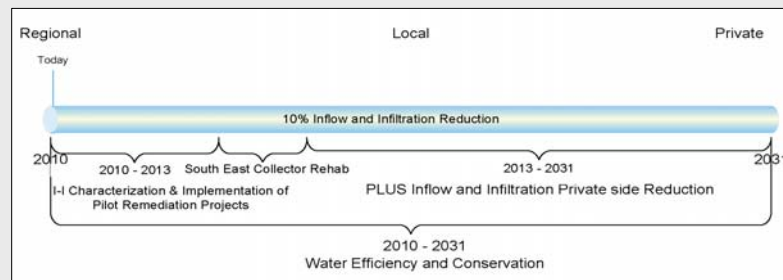
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Timeline for I-I Reduction



- Clarification of level of commitment of funding and resources for I-I reduction



20 Year Timeline to Reduce Peak Wastewater Flow by 10%

February 3, 2010 2013 Capacity Assignment for YDSS Area Presentation to Planning Committee

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Region Reserve Summary



First Regional Reserve established by Council in 2005 (6,000 persons)

Fully set aside for:

- Decommissioning of Holland Landing Lagoons and conversion to YDSS service
- Non-profit housing



Second Regional Reserve established as part of 2012 servicing capacity assignment (2,164 persons)

- Reserve for Regional Priorities as they arise
- Newmarket & Aurora top up to facilitate intensification including Urban Growth Centre and Yonge Street Regional Corridor



Small reserves set aside to meet Regional priorities

February 3, 2010 2013 Capacity Assignment for YDSS Area Presentation to Planning Committee

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Reserve Summary



Regional Reserve Summary (Population)

	Regional Priorities	Non-profit Housing	Holland Landing Lagoon Conversion	2012 Reserve Proposed Assignment	Totals (population)
2005 Reserve Commitments		1,852	4,148		6,000
2012 Reserve Additional Top Up	2,164		0	(528)	1,636

February 3, 2010 2013 Capacity Assignment for YDSS Area Presentation to Planning Committee

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Challenges to 2013 Allocation

- Desire to accommodate additional growth for 2013
- Capacity constraints exist in the YDSS to permit 2013 Allocation driven by:
 - Delay in IEA approval of the Southeast Collector (SEC)
 - Inflow and Infiltration (I-I)
- Careful management of system flows through I-I reduction and flow control gates will help manage operating risk prior to SEC commissioning
- Capacity constraints north of Oak Ridges Moraine

Reserve Summary



Regional Reserve Summary (Population)



	Regional Priorities	Non-profit Housing	Holland Landing Lagoon Conversion	2012 Reserve Proposed Assignment	Totals (population)
2005 Reserve Commitments		1,852	4,148		6,000
2012 Reserve Additional Top Up	2,164		0	(528)	1,636

Housing Services
Housing York Inc.



February 10, 2010

2013 Capacity Assignment for YDSS Area

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Next Steps



- Report back to Environmental Services Committee in Q2-2010 with additional details and cost estimates on I-I Reduction programs
- Regional and Local municipalities to work together on I and I reduction through a collective task force
- Further discussions with local municipalities on the Future Servicing Principles roll out – leading to a Spring Report to Regional Council

February 10, 2010

2013 Capacity Assignment for YDSS Area

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