
PUBLIC PARTICIPATION MEETING – Thompson Short Plat ([PLN51397 PRE/SPT](#))
CALL TO ORDER – Call to Order, Agenda Review, Conflict Disclosure
REVIEW AND APPROVE MINUTES – September 5 and 12, 2019
PUBLIC COMMENT ON OFF AGENDA ITEMS
OPEN GOVERNMENT MEETING TRAINING
SPR/CUP DECISION CRITERIA UPDATE – Recommendation
AVETERRA CODE REQUEST – Study Session
CITY COUNCIL UPDATE
NEW/OLD BUSINESS
ADJOURN

PUBLIC PARTICIPATION MEETING – Thompson Short Plat ([PLN51397 PRE/SPT](#))

Chair William Chester opened the meeting at 5:59 PM. Senior Planner Kelly Tayara introduced applicant Jeffrey Thompson who presented the proposed short plat.

CITY COUNCIL UPDATE

Planning Director Heather Wright provided the City Council update after the public participation meeting which ended early.

CALL TO ORDER – Call to Order, Agenda Review, Conflict Disclosure

Chair William Chester called the meeting to order at 6:29 PM. Planning Commissioners in attendance were J. Mack Pearl, Jon Quitslund, Kimberly McCormick Osmond and Joe Paar. Lisa Macchio and Don Doman were absent. City Staff present were Deputy City Attorney Robbie Sepler, Planning Director Heather Wright, Interim Planning Manager David Greetham, Engineering Manager Mike Michael, Long Range Senior Planner Jennifer Sutton, Senior Planner Kelly Tayara, Planner Annie Hillier and Administrative Specialist Jane Rasely who monitored recording and prepared minutes.

The agenda was reviewed. There were not any conflicts noted.

PUBLIC COMMENT ON OFF AGENDA ITEMS

None.

REVIEW AND APPROVE MINUTES – September 5 and 12, 2019

Motion: I move approval of the minutes for the meeting of September 5, 2019 as distributed.

Quitslund/Paar: Passed Unanimously

Motion: approval of the minutes for the September 12 meeting, 2019, as distributed.

Quitslund/Pearl: Passed Unanimously

OPEN GOVERNMENT MEETING TRAINING

Deputy City Attorney Robbie Sepler led the training.

SPR/CUP DECISION CRITERIA UPDATE – Recommendation

Long Range Senior Planner Jennifer Sutton led the discussion. The Planning Commission asked for a clean copy at their next meeting before they made a recommendation.

AVETERRA CODE REQUEST – Study Session

Planner Annie Hillier facilitated discussion and introduced applicant Mollie Bogardus who provided additional information based upon the Commissioner's questions at the last meeting. (See attached presentation.) Caitlin Price Youngquist, PhD presented information regarding organic material, odor and leachate.

Public Comment

Nick Masla, Citizen – Asked questions about the public process for this proposed code change. Mr. Masla also asked why they could not use the capped landfill site at the Vincent Road transfer station.

Brian Ferrell, Citizen – Stated the continuous truck action at the site had been a burden and stated he was concerned about noise, water contamination and odor.

Danielle Bogardus, Citizen - Spoke in favor of the project and asked why Bainbridge was not already doing this. She spoke about being an island that was self-sustaining.

Olaf Ribeiro, Citizen – Spoke in favor of the composting facility and asked questions of the applicant regarding lab analysis. He stated that if it was done correctly, there was a great opportunity in this project.

Sandy Charyn, Citizen - Spoke about the trucks and the noise. He also said it sounded like a good idea but wanted less activity rather than more activity. He asked for attention to be given to ingress and egress and worried about rodent activity.

Brian Ferrell, Citizen – Suggested a lot of the neighborhood concerns could be eliminated if they moved the compost facility to the transfer station site.

The Planning Commission decided to have a subcommittee comprised of Jon Quitslund, Joe Paar and J. Mack Pearl look further into the code.

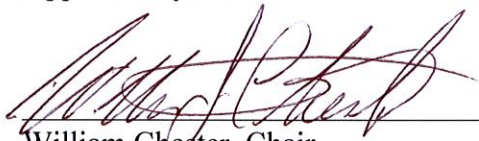
NEW/OLD BUSINESS

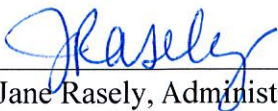
None.

ADJOURN

The meeting was adjourned at 9:16 PM.

Approved by:


William Chester, Chair

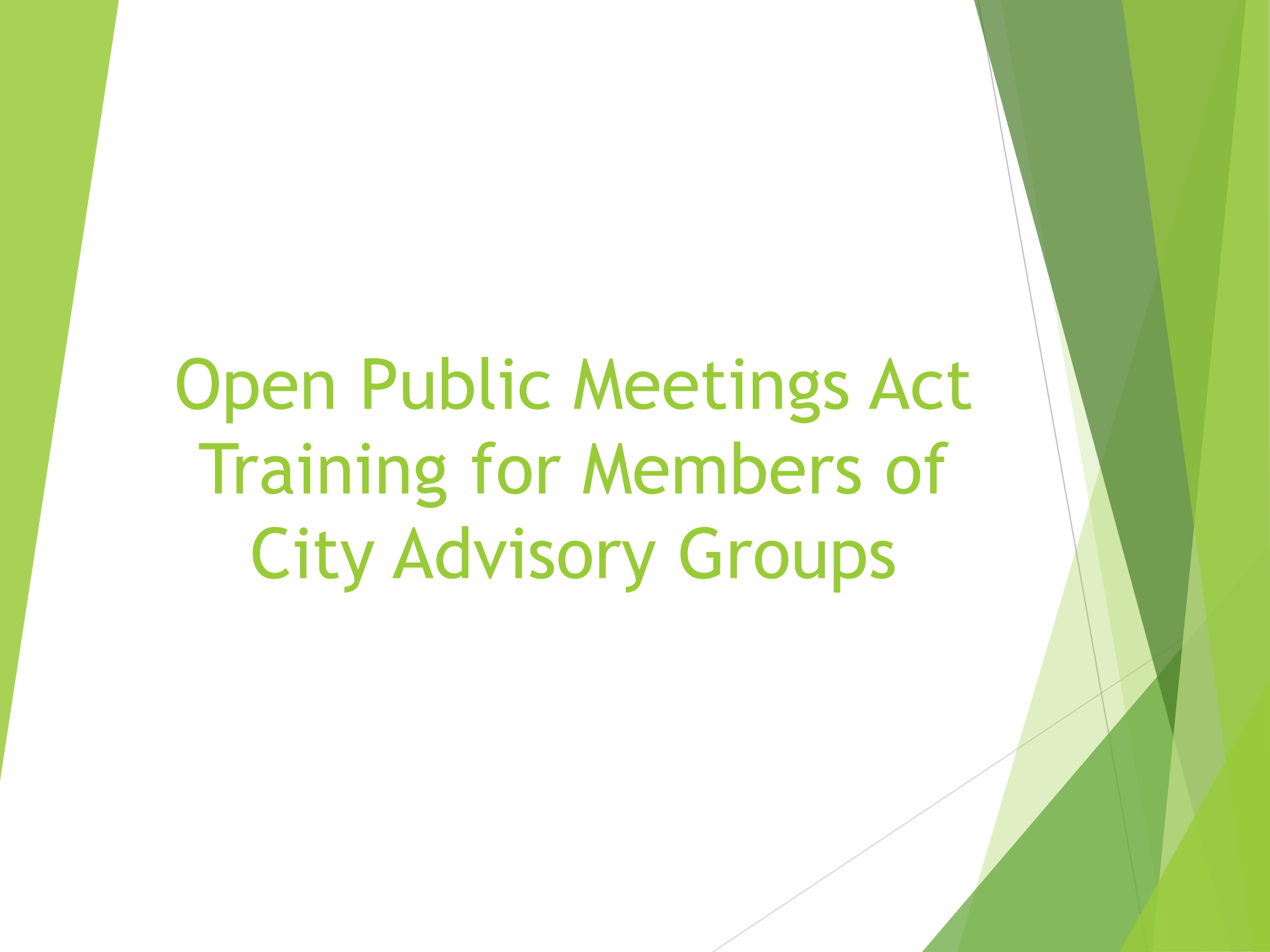

Jane Rasely, Administrative Specialist

CITY OF
BRIDGE ISLAND

**Planning Commission Public Participation Meeting
and Special Meeting
Thursday, September 26, 2019
6:00 pm – 9:00 pm**

PLEASE PRINT

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Open Public Meetings Act Training for Members of City Advisory Groups

Today's Topics

1. Purposes of the OPMA.
2. General OPMA requirements.
3. Regular and special meetings, and public notice.
4. Rules on public attendance and conduct during meetings.
5. Serial and online meetings, email, and social media.

Purposes of the OPMA

- ▶ People of Washington don't yield sovereignty to local governments and agencies.
- ▶ The people insist on remaining informed.
- ▶ Public servants in the state exist to aid in the conduct of the people's business.
- ▶ It's the intent of the OPMA that the actions of public servants be taken openly and that their deliberations be conducted openly.

3 General OPMA Requirements

1. All meetings of the governing body must be open to the public
2. No secret ballots
3. Ordinances, resolutions, rules, regulations, and orders must be adopted at a public meeting or they are invalid

OPMA – AGENCY OBLIGATIONS: A STARTING POINT

PRACTICE TIPS
For Local Government Success

MRSC 

The basic requirement of the Open Public Meetings Act (OPMA) is that meetings of governing bodies be open and public. Use these practice tips to guide your agency's OPMA compliance.* For more information and resources visit www.mrsc.org/opmapra

Basic Requirements

- All meetings open and public. All meetings of governing bodies of public agencies must be open to the public, except for certain exceptions outlined in the OPMA. RCW 42.30.030.
- Quorum. Generally, a meeting occurs when a quorum (majority) of the governing body is in attendance and action is taken, which includes discussion or deliberation as well as voting. RCW 42.30.020(2) & (3).
- Attendees. All persons must be permitted to attend and attendees cannot be required to register their names or other information as a condition of attendance. Disruptive and disorderly attendees may be removed. RCW 42.30.040 & .050.
- No secret ballots. Votes may not be taken by secret ballot. RCW 42.30.060(2).
- Adoption of ordinances. Ordinances, resolutions, rules, regulations, and orders must be adopted at a public meeting or they are invalid. RCW 42.30.060(1).

Position in Agency	Required to Comply
Member of a governing body ☐ City or Town Councilmember or Mayor ☐ County Commissioner or County Councilmember ☐ Special Purpose District Commissioner/Board Member	Yes
Member of a subagency created by ordinance or legislative act, e.g.: ☐ Planning Commission ☐ Library Board ☐ Parks Board ☐ Civil Service Commission	Yes
Member of a committee ☐ Committees that act on behalf of the governing body, conduct hearings, or take testimony or public comment	Yes
Agency staff	No

Penalties for Noncompliance

- Actions null and void. Any action taken at a meeting which fails to comply with the provisions of the OPMA is null and void. RCW 42.30.060(1).
- Personal liability. Potential personal liability of \$100 for any member of a governing body who attends a meeting knowing that it violates the OPMA. RCW 42.30.120(1).
- Agency liability. Any person who prevails against an agency in any action in the courts for a violation of the OPMA will be awarded all costs, including attorney fees, incurred in connection with such legal action. RCW 42.30.120(2).

OPMA Training Requirements, Effective July 1, 2014

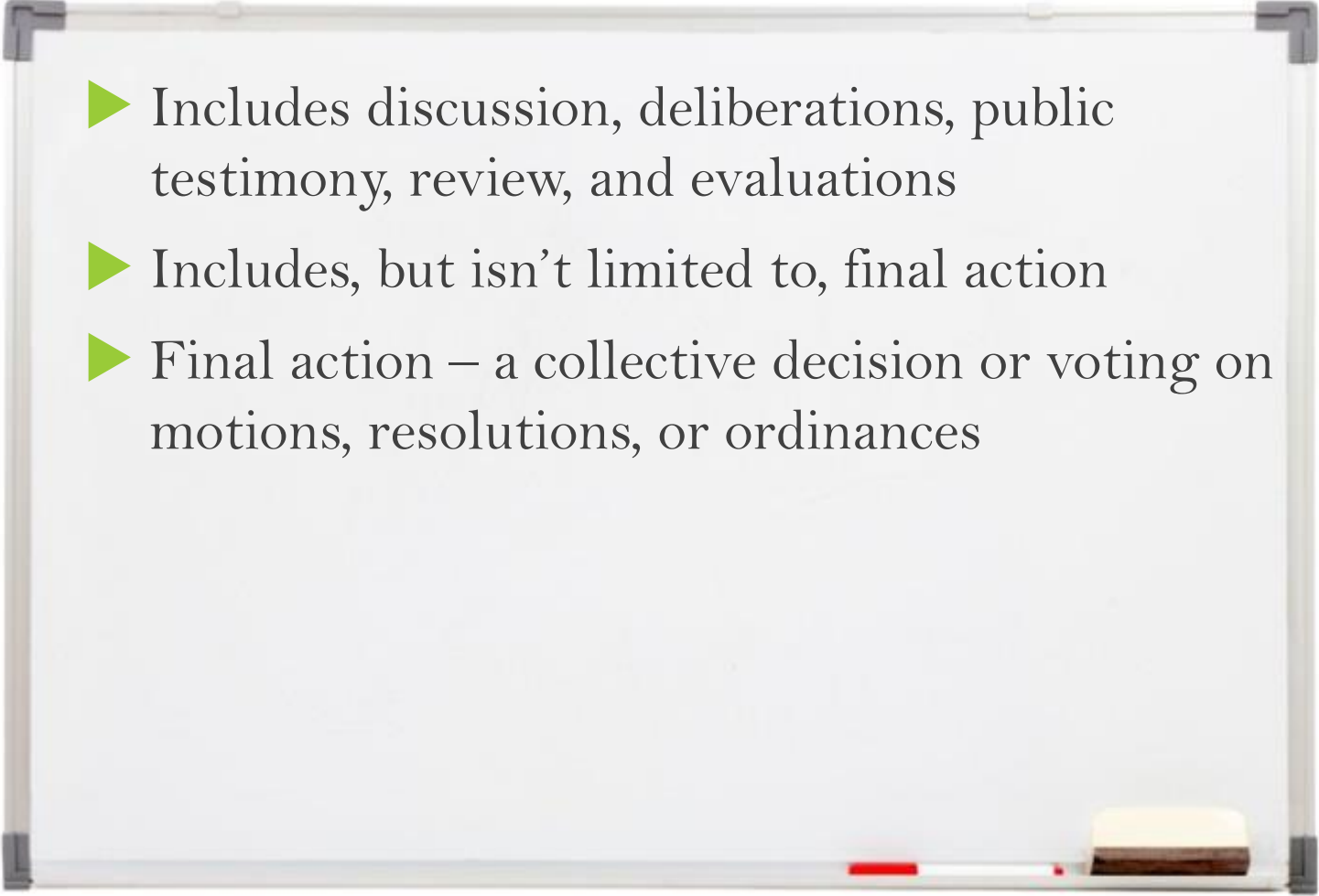
- Every member of a governing body of a public agency must complete training requirements on the OPMA within 90 days of assuming office or taking the oath of office.
- In addition, every member of a governing body must complete training at intervals of no more than four years as long as they remain in office.

*DISCLAIMER: These practice tips are meant to provide summary information on basic agency obligations of the OPMA; the practice tips are not intended to be regarded as specific legal advice. Consult with your agency's legal counsel about this topic as well. May 2014

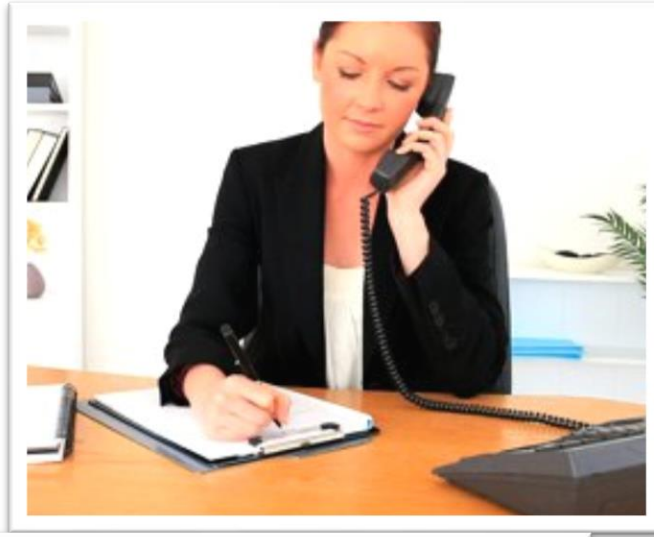
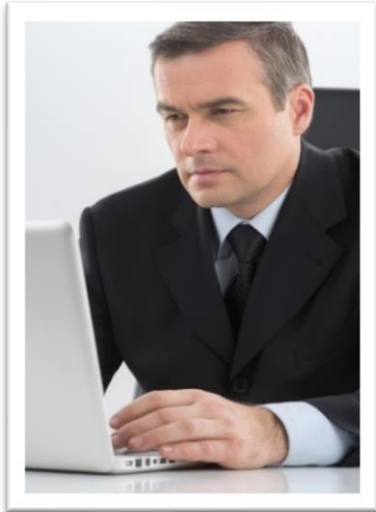
What is a Meeting?



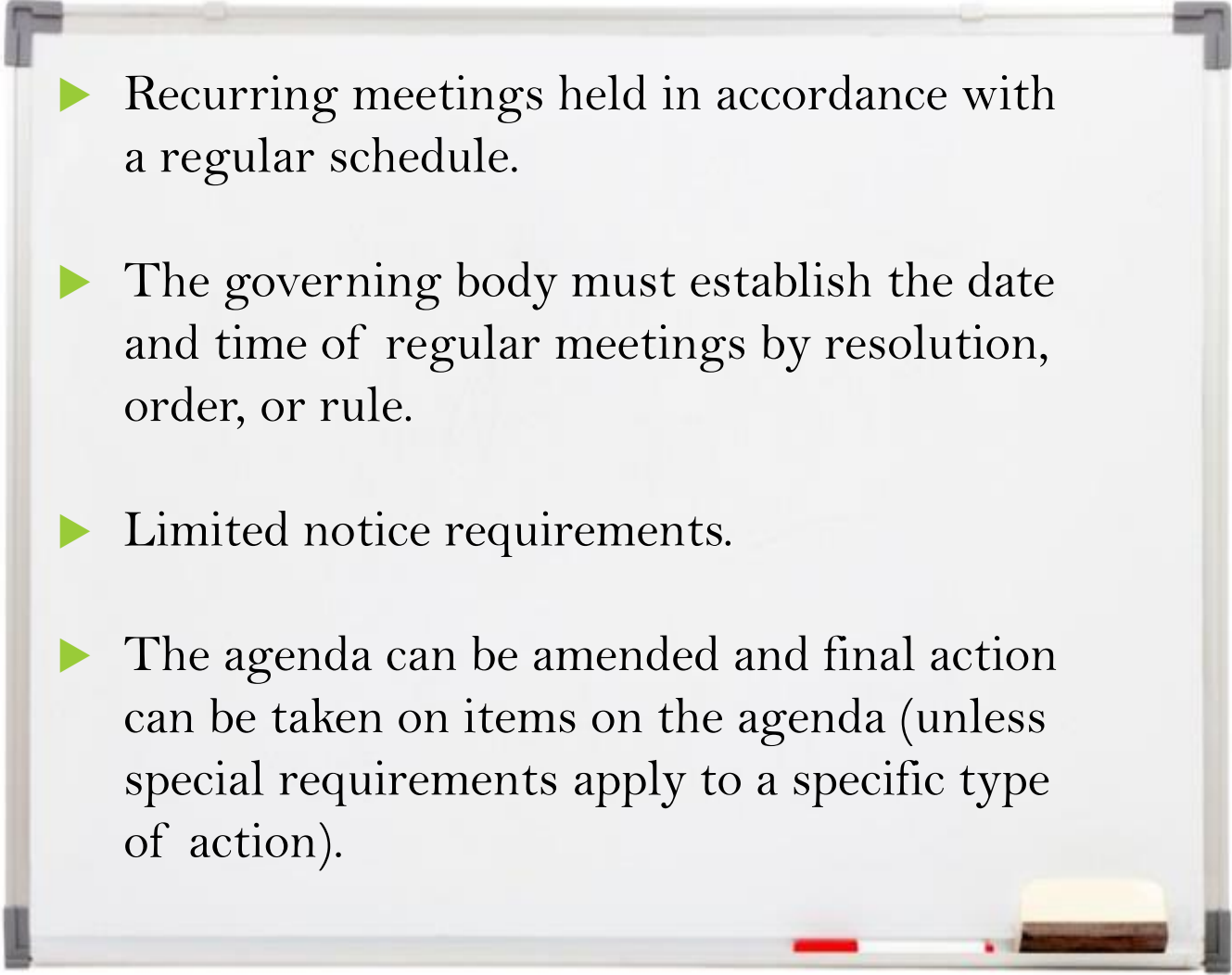
“Action” Under the OPMA

- 
- ▶ Includes discussion, deliberations, public testimony, review, and evaluations
 - ▶ Includes, but isn't limited to, final action
 - ▶ Final action – a collective decision or voting on motions, resolutions, or ordinances

Other Types of Activities that Could be Considered a Meeting



Regular Meeting

- 
- ▶ Recurring meetings held in accordance with a regular schedule.
 - ▶ The governing body must establish the date and time of regular meetings by resolution, order, or rule.
 - ▶ Limited notice requirements.
 - ▶ The agenda can be amended and final action can be taken on items on the agenda (unless special requirements apply to a specific type of action).

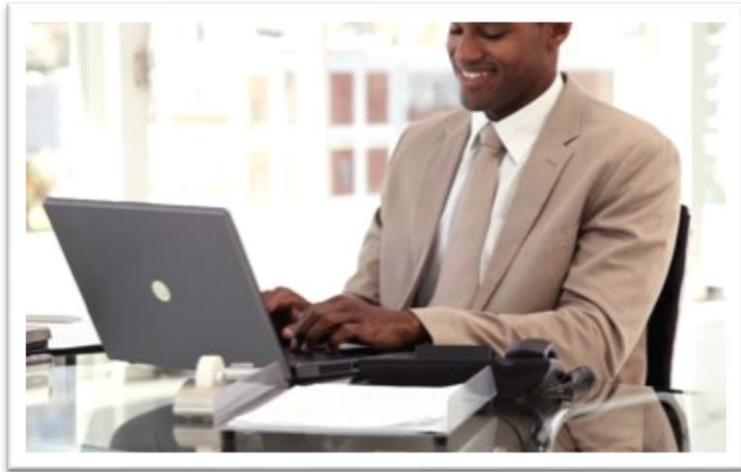
What is a Special Meeting?

- ▶ Any meeting other than a regular meeting, regardless of label.
- ▶ May be called by the presiding officer or a majority of the members of the governing body.
- ▶ Has special notice requirements.
- ▶ The meeting may be about more than one topic.
- ▶ However, **no final action** may be taken on a topic **unless the topic was listed in the notice for the meeting.**

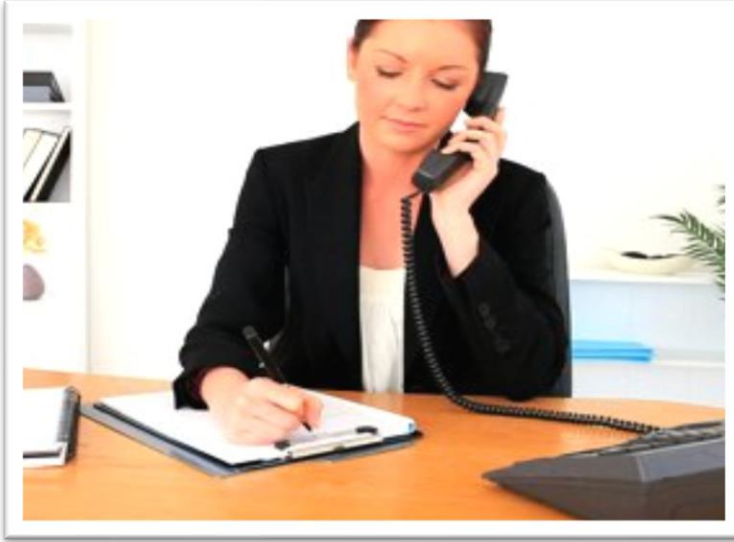
Public Attendance and Conduct During Meetings



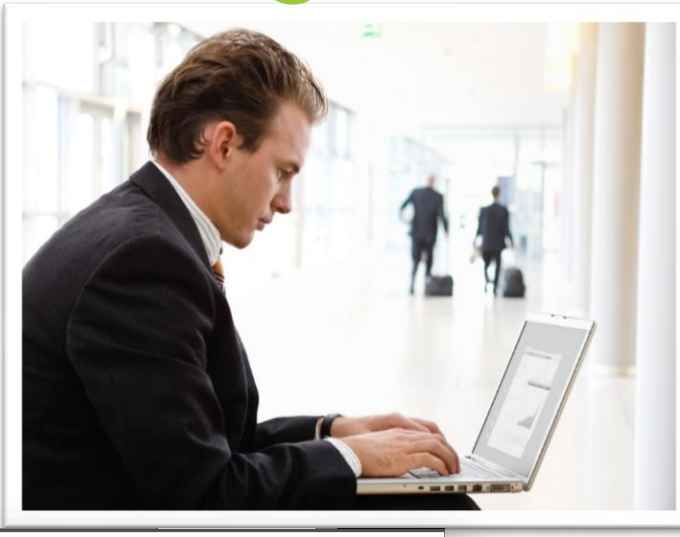
Serial (or “Rolling”) Meetings



Telephone Tree



Practice Tips to Avoid OPMA Violations When Using Email



OPMA – ELECTRONIC COMMUNICATIONS

PRACTICE TIPS

For Local Government Success



These practice tips are intended to provide practical information to local government officials and staff about electronic communications and requirements under the Open Public Meetings Act (OPMA), chapter 42.30 RCW. Electronic communications between members of an agency's governing body can implicate the OPMA, and these practice tips will help guide you in identifying and addressing key issues in this regard.* For more information and resources visit www.mrsc.org/opmapra

An Email Exchange Can Constitute a Meeting

If you, as a member of the governing body (e.g., city council, board of commissioners, planning commission), communicate with other members of the governing body by email, keep in mind that email exchanges involving a majority of members of the governing body can constitute a "meeting" under the OPMA. This principle also applies to text messaging and instant messaging.

What types of email exchanges can constitute a meeting? If a majority of the members of the governing body takes "action" on behalf of the agency through an email exchange, that would constitute a meeting under the OPMA. Note that taking "action" under the OPMA can occur through mere discussion of agency business, and that any "action" may be taken only in a meeting open to the public. The participants in the email exchange don't have to be participating in that exchange at the same time, as a "serial" or "rolling" meeting can occur in violation of the OPMA.

Recommendations: As a member of the governing body, consider the following tips to avoid potential OPMA violations:

- Passive receipt of information via email is permissible, but discussion of issues via email by the governing body can constitute a meeting.
- An email message to a majority or more of your colleagues on the governing body is allowable when the message is to provide only documents or factual information, such as emailing a document to all members for their review prior to the next meeting.
- If you want to provide information or documents via email to other members of the governing body, especially regarding a matter that may come before the body for a vote, have the first line of the email clearly state: "For informational purposes only. Do not reply."
- Unless for informational purposes only, don't send an email to all or a majority of the governing body, and don't use "reply all" when the recipients are all or a majority of the members of the governing body.
- Alternatively, rather than emailing materials to your colleagues on the governing body in preparation for a meeting, have a designated staff member email the documents or provide hard copies to each member. It's permissible, for example, for a staff member to communicate via email with members of the governing body in preparation for a meeting, but the staff member needs to take care not to share any email replies with the other members of the governing body as part of that email exchange.

The OPMA and Email - Practice Tips

- ▶ Passive receipt of information via email is permissible – but discussion of issues via Committee email can constitute a meeting.
- ▶ It's generally OK to email a majority or more of the Committee only documents or factual information.
- ▶ For such information-only emails to other members of the governing body, have the first line of the email clearly state: "For informational purposes only. Do not reply."
- ▶ Except for information-only emails, don't send an email to all or a majority of the Committee, and don't use "reply all" when the recipients are all or a majority of the Committee.
- ▶ Alternatively, have a designated staff member email the documents or provide hard copies to each member of the governing body.

Closing Recommendations

OPMA – ELECTRONIC COMMUNICATIONS

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OPMA – EXECUTIVE SESSIONS

CHECKLIST

For Local Government Success



The Open Public Meetings Act (OPMA) requires specific steps be taken in order to hold an executive session. Use this checklist to guide your agency's compliance with the OPMA related to executive sessions.* For more information and resources visit www.mrsc.org/opmapra

	Requirement	Completed/ Applicable
Meeting	An executive session can only be held as part of a regular or special meeting.	Yes
Purpose	The presiding officer announces in open session the purpose of the executive session.	Yes
End Time	The presiding officer announces in open session the time the executive session will end.	Yes
Legal Counsel	Legal counsel is present during the executive session, if required. (See topics below and on the next page for discussions that require the presence of legal counsel.)	Yes
Confidentiality	At the start of the executive session, participants are reminded that discussions are confidential.	Yes
Topics	Related to local governments, the following topics set forth in RCW 42.30.130(1) can be discussed in executive session:	
	• Matters affecting national security. RCW 42.30.130(1)(a).	Yes
	• Lease or purchase of real estate if there's a likelihood that disclosure would increase the price. RCW 42.30.130(1)(b).	Yes
	• Consideration of the minimum offering price for sale or lease of real estate if there's a likelihood that disclosure would decrease the price. RCW 42.30.130(1)(c).	Yes
	• Note: First action setting or hearing public property must be taken in open session.	Yes
	• Negotiations on the performance of a publicly bid contract. RCW 42.30.130(1)(d). See back of page.	Yes
	• Complaints or charges brought against a public officer or employee. RCW 42.30.130(1)(f).	Yes
	• Note: At council's request, discussion must be in open session.	Yes
	• Qualifications of an applicant for public employment. RCW 42.30.130(1)(g). See back of page.	Yes
	• Performance of a public employee. RCW 42.30.130(1)(h). See back of page.	Yes
	• Qualifications of an applicant/candidate for appointment to elective office. RCW 42.30.130(1)(i). See back of page.	Yes
	• Agency enforcement actions. RCW 42.30.130(1)(j). See back of page.	Yes
	• Note: Requires presence of legal counsel.	Yes
	• Current or potential litigation. RCW 42.30.130(1)(k). See back of page.	Yes
	• Note: Requires presence of legal counsel.	Yes
	• Legal risks of current or proposed action. RCW 42.30.130(1)(l). See back of page.	Yes
	• Note: Requires presence of legal counsel.	Yes
Extended End Time	If the executive session is not completed by the originally announced end time, the presiding officer announces the extended end time in open session before returning to executive session.	Yes
Resuspension	Open session is not resumed until after the announced end time.	Yes

Meeting Date: _____ Form Completed By: _____
Attendees: _____
*DISCLAIMER: This checklist is meant to provide summary information on executive sessions; the checklist is not intended to be regarded as specific legal advice. Consult with your agency's legal counsel about this topic as well.

OPMA – AGENCY OBLIGATIONS: A STARTING POINT

PRACTICE TIPS

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- No secret ballots. Votes may not be taken by secret ballot. RCW 42.30.060(2).
- Adoption of ordinances. Ordinances, resolutions, rules, regulations, and orders must be adopted at a public meeting or they are invalid. RCW 42.30.060(1).

Position in Agency	Required to Comply
Member of a governing body	
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Member of a subagency created by ordinance or legislative act, e.g.:	
☐ Planning Commission ☐ Library Board ☐ Parks Board ☐ Civil Service Commission	Yes
Member of a committee	
☐ Committees that act on behalf of the governing body, conduct hearings, or take testimony or public comment	Yes
Agency staff	No

Penalties for Noncompliance

- Actions null and void. Any action taken at a meeting which fails to comply with the provisions of the OPMA is null and void. RCW 42.30.060(1).
- Personal liability. Potential personal liability of \$100 for any member of a governing body who attends a meeting knowing that it violates the OPMA. RCW 42.30.120(1).
- Agency liability. Any person who prevails against an agency in any action in the courts for a violation of the OPMA will be awarded all costs, including attorney fees, incurred in connection with such legal action. RCW 42.30.120(2).

OPMA Training Requirements: Effective July 1, 2014

- Every member of a governing body of a public agency must complete training requirements on the OPMA within 90 days of assuming office or taking the oath of office.
- In addition, every member of a governing body must complete training at intervals of no more than four years as long as they remain in office.

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May 2014

OPMA – NOTICE REQUIREMENTS

PRACTICE TIPS

For Local Government Success



Under the Open Public Meetings Act (OPMA), to ensure that agency deliberations and other actions are conducted and taken openly, agencies are required to provide sufficient public notice of their meetings. Use these practice tips as a starting guide for OPMA notice requirements.* For more information and resources visit www.mrsc.org/opmapra

	Regular Meetings (RCW 42.30.070)	Special Meetings (RCW 42.30.080)
Definition and Agenda	Held in accordance with a schedule fixed by ordinance, resolution, policy, or other rule. Effective June 12, 2014, agendas must be made available on the agency's website at least 24 hours in advance of the meeting unless the agency: 1. Doesn't have a website; or 2. Employs fewer than 20 full-time equivalent employees. There are no other notice requirements for regular meetings in the OPMA. However, other relevant laws apply to some local governments. For example, other laws are required to establish a procedure for notifying the public of the preliminary agenda for the forthcoming council meeting (although not necessarily posted as well as regarding upcoming hearings. RCW 35A.124.150; RCW 35.228; RCW 35.221; RCW 35.27.005. There are no similar requirements for counties or special purpose districts related to preliminary agendas.	Anything other than a regular meeting. May be called by the presiding officer or a majority of the members of the governing body. The special meeting notice must specify the date, time, and place of the special meeting, and the business to be transacted. Personal notice. Written notice must be delivered personally, by mail, fax, or e-mail at least 24 hours before the meeting to: 1. Each member of the governing body, unless the member submits a written waiver of notice in advance with the clerk, or the member is actually present at the meeting; and 2. Each member of the news media who has on file with the governing body a written request for notice of special meetings. Website notice. Notice must be posted on the agency's website 24 hours in advance of the meeting, unless the agency: 1. Doesn't have a website; or 2. Employs less than 20 full-time equivalent employees; or 3. Doesn't employ personnel whose duty as defined by a job description or existing contract, is to maintain or update the website. Notice at agency's principal location. Notice must be prominently displayed at the main entrance of the agency's principal location and the meeting site if the meeting isn't held at the agency's principal location.
Emergency	In an emergency situation (e.g., fire, flood, earthquake, or other emergency), a meeting may be held at a site other than the regular meeting site, and the notice requirements under the OPMA are suspended during such an emergency.	The notices required for special meetings aren't required if a special meeting is called to deal with an emergency involving injury or damage to persons or property or the likelihood of such injury or damage, when those requirements of each notice would make notice impractical and increase the likelihood of such injury or damage.
Holidays	Regular meetings that will be held on a holiday, if a regular meeting falls on a holiday, the meeting must be held on the next business day.	Although not specifically addressed by the OPMA, we recommend that special meetings not be held on holidays out of consideration for public participation.
Business Transactions	There are no restrictions on the type of business that may be transacted at regular meetings.	Final disposition cannot be taken on any matter not listed in the special meeting notice.

*DISCLAIMER: These practice tips are meant to provide summary information on the notice requirements of the OPMA; these tips are not intended to be regarded as specific legal advice. Consult with your agency's legal counsel about this topic as well.

May 2014

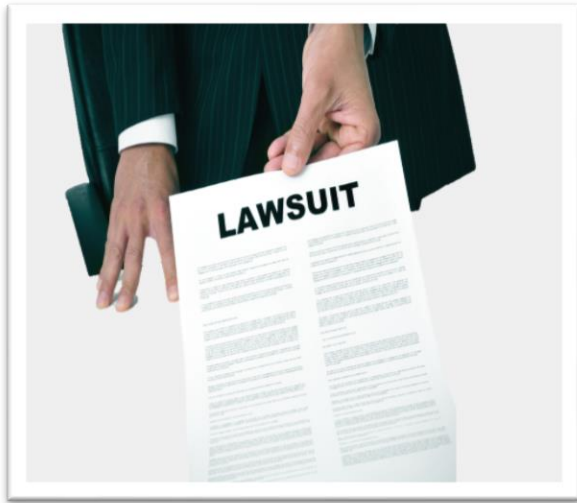
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Public Records Training for Members of City Advisory Groups

Today's Topics

1. What are the penalties for violations of records retention law and the PRA?
2. Complying with the PRA.
3. What is a public record?
4. Responding to a PRA request.
5. Use of email for agency business
6. Exemptions and prohibitions.

Penalties



References: Chapter 42.56 RCW; chapter 40.16 RCW

PRA Penalties

- ▶ Per day penalties from \$0 to \$100
- ▶ Costs and fees

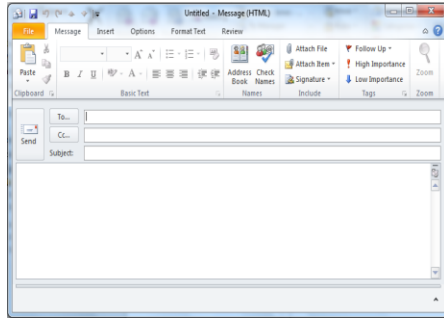
Also, as a committee member, the appointing authority (e.g., the City Council) has the authority to remove you from the committee based on a violation of City policy.



Purposes of the PRA

- People don't yield sovereignty to local government
- Maintain right to know
- People maintain control through access to information
- Fully protect public interest

Common Types of Public Records



Prepared
Owned
Used
Retained



Key Concept

- Consider the content of the record.
- A record is a public record if it relates to the conduct of government or the performance of any governmental or proprietary function, and it meets one of the POUR factors.
- A record is not a public record if it relates solely to personal matters and not to agency business.

Using Email for Committee Business

- ▶ Use your City account for all committee business
- ▶ Use your City account only for committee business.
- ▶ If you get a committee-related email message via your personal account, forward the email to your City account, and respond to the sender and indicate to them that all committee-related emails need to be sent to you via your City email address.

Texts Related to Committee Business

- ▶ Do not send texts related to committee business.
- ▶ If you receive a committee-related text message on your personal phone, use the following procedure:
 - 1) Reply with a message stating that all written committee-related communications must be through your City email address.
 - 2) Forward both the original text and your response as an attachment to your City email account.
 - 3) Include the date, sender & recipient name, and brief description of the topic in the subject line of the email.

Social Media and Committee Business

- ▶ Do not use social media for committee business.
- ▶ If you receive a committee-related message on your personal social media account, use the following procedure:
 - 1) Reply with a message stating that all written communication must be through your City email address.
 - 2) Forward both the original message and your response as an attachment to your City email account.
 - 3) Include the date, sender & recipient name, and brief description of the topic in the subject line of the email.

Social Media and Committee Business

- ▶ Every committee is encouraged to work with Kristen Drew, the City's Communications Coordinator
- ▶ Kristen Drew, Communications Coordinator
kdrew@bainbridgewa.gov
206.780.3741 (office)

Email, Text, and Social Media Recap

- ▶ Use your City email account for all committee business.
- ▶ Use your City email account only for committee business.
- ▶ Do not send texts related to committee business.
- ▶ Do not use social media for committee business.

Use of Personal Devices

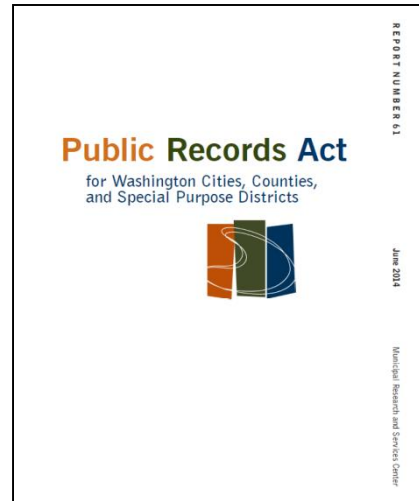
- ▶ Personal Devices = Personal phone, laptop, tablet, etc.
- ▶ To the extent possible, keep committee-related records separate from personal records.
- ▶ Do not delete committee-related records without first forwarding them to your City-issued email account.

Use of Online Productivity/Collaboration Tools

- ▶ Examples: Slack, Trello, Asana, etc.
- ▶ Do not use online productivity/collaboration tools.

Exemptions Under the PRA

- ▶ Exemptions are narrowly construed
- ▶ Exemptions are permissive rather than mandatory



Closing Recommendations

ELECTRONIC RECORDS – PRA AND RECORDS RETENTION		
DO'S AND DON'TS		
For Local Government Success		
These Do's and Don'ts are intended to provide summary guidance related to use of electronic records and electronic devices in compliance with the Public Records Act (PRA) (chapter 42.56 RCW) and records retention law (chapter 40.54 RCW). For a more thorough analysis of these issues, please review our related guide: Electronic Records – PRA and Records Retention Practice Tips . [*] For more information and resources also visit www.mrsc.org/opnmapra		
	Do	Don't
Agency Computer	Do use your agency computer to conduct agency business. This allows your agency to retain records appropriately and locate such records in response to a PRA request.	Don't delete records from your agency computer (or any computer) unless you're certain the records aren't public records, or the records are past their required record retention period. (If you have any doubt about deleting records, check with your agency's legal counsel.)
Personal Computer	Do use your personal computer to remotely access your agency's file server and email server (if your agency allows for such remote access).	Don't use your personal computer to conduct agency business unless you do so by accessing your agency's server(s) remotely. If that's not possible and you use your personal computer to conduct agency business, make sure that you: • Retain all public records with retention value; and • Provide those records to your agency so the agency can retain the records appropriately and make them available if a PRA request is made for such records.
Agency Email Account	Do use your agency email account to conduct agency business. This allows your agency to retain its records appropriately and to locate such records in response to a PRA request.	Don't delete emails sent or received from your agency email account unless you're certain the emails aren't public records, or the emails are past their required record retention period. (If you have any doubt about deleting emails, check with your agency's legal counsel.)

PRA – AGENCY OBLIGATIONS: A STARTING POINT	
CHECKLIST	
For Local Government Success	
The Public Records Act (PRA) establishes basic procedural requirements that each agency must adopt. Use this checklist as a start for PRA compliance. [*] For more information and resources visit www.mrsc.org/opnmapra	
☐	Assign a Public Records Officer (PRO) Post the PRO's contact information at the agency's place of business, on the agency's website (if any), and in any relevant publications. RCW 42.56.040.
☐	Adopt a Local Public Records Act Policy The local PRA policy should outline reasonable regulations for the agency's handling of public records requests, such as the agency's response process when it receives a records request. The policy must be prominently displayed. RCW 42.56.045.
☐	Publish a List of Exemptions and Prohibitions Found Outside the PRA Publish a list of exemption and prohibitions to disclose other than those listed in the PRA. RCW 42.56.070. Examples of these other types of exemption and prohibitions can be found in Appendix C of MRSC's <i>Public Records Act</i> publication.
☐	Maintain an Index of Public Records Maintain a current index of many types of agency records unless to do so would be unduly burdensome for the agency. If it's unduly burdensome, the agency must adopt a formal order specifying the reasons why and the extent to which compliance would unduly burden or interfere with agency operations. RCW 42.56.070.
☐	Adopt a PRA Fee Schedule Establish fees for PRA costs, including costs for hard copies, electronic copies, and mailing costs. RCW 42.56.070 and RCW 40.56.120.
☐	Provide for a Review Procedure for any Denial of Records An agency must provide for review of a denied or limited records. The review can be conducted by the PRO's supervisor, the agency's attorney, or any individual designated by the agency. Review is deemed complete two business days after the initial denial. RCW 42.56.120.
☐	PRA Training Requirements, Effective July 1, 2014 (see Office of the Attorney General: <i>Open Government Training Act</i> (O & A)) • Every local elected official and every local government PRO must receive records training (PRA training concerning chapter 42.56 RCW and records retention training concerning chapter 40.54 RCW). • This training must be completed no later than 30 days after these elected officials and PROs take their oath of office or assume their duties. They must also receive "refresher" training at intervals of no more than four years.

*DISCLAIMER: These practice tips are meant to provide summary information on basic procedural requirements of the PRA; this checklist is not intended to be regarded as specific legal advice. Consult with your agency's attorney about its use as well.

May 2014

ELECTRONIC RECORDS – PRA AND RECORDS RETENTION	
PRACTICE TIPS	
For Local Government Success	
These practice tips are intended to provide practical information to local government officials and staff about electronic records and requirements under the Public Records Act (PRA) (chapter 42.56 RCW) and records retention law (chapter 40.54 RCW). The tips are based on real-world experiences, as played out in our courts and otherwise. [*] For more information and resources visit www.mrsc.org/opnmapra	
Key Initial Point In the context of these practice tips, it's important to keep in mind that the vast majority of records—including electronic records—that agencies deal with are public records. That said, it's also important to recognize that: (1) not all records prepared, owned, used, or retained by an agency are public records; and (2) not all public records have retention value.	
Key Terms as Used in These Practice Tips Electronic record: An electronic record (e-record) is a record you can access through an electronic device. E-records include documents, emails, voice messages, texts, tweets, instant messages, photos, and videos. Electronic device: An electronic device (e-device) is any device you can use to access e-records. E-devices include desktop computers, laptops, smart phones, other cell phones, and tablets.	
Remember These General Principles for Electronic Records 1. Think before you "POUR." Regardless of the e-device you use to create or access an e-record, if that e-record, no matter its form, is prepared, generated, or retained by the agency, and its content relates to the conduct of government or the performance of any governmental or proprietary function, it's a public record. 2. Establish agency policies/procedures. Agencies should adopt effective policies and/or procedures related to e-communications and e-devices, including appropriate use and retention requirements. 3. Failure to comply can be costly. Knowledge of, and compliance with, the rules that apply to production and retention of e-records and use of e-devices is essential, because even inadvertent mistakes can result in serious consequences for your agency.	
What kind of consequences? If a PRA requester wins in court, an agency will be subject to daily penalties ranging from \$0-\$100 per day (the trial court decides the amount), and the court will award attorney fees and costs to the requester in the context of records retention requirements. It's a	

Check out MRSC's Public Records (and OPMA) Practice Tips and Checklists.

PRA – HOW TO PERFORM AN ADEQUATE SEARCH FOR RECORDS	
PRACTICE TIPS	
For Local Government Success	
The Public Records Act (PRA), chapter 42.56 RCW, requires that agencies perform an adequate search to locate records responsive to a public records request. The PRA itself doesn't provide detailed provisions on how to conduct an adequate search. Rather, such requirements can be found in court decisions interpreting the PRA, including <i>Neighborhood Alliance v. Spokane County</i> , 172 Wn.2d 702 (2013). These practice tips are based on such case law. Use these tips to guide your agency's search for responsive records. [*] For more information and resources visit www.mrsc.org/opnmapra	
Adopt a Standard Methodology to Search for Records <i>(This methodology will apply to each search.)</i>	
1	Records organization. Understand how each department within your agency organizes and retains its records. Implement an effective system for locating and collecting responsive records. With an effective system in place, an agency can more efficiently find records responsive to a PRA request and more easily defend itself against a challenge that its search for records was inadequate, especially in situations in which the agency finds no records responsive to a PRA request.
2	How does the agency inform applicable staff and officials about a PRA request? TIP: Consider having the Public Records Officer (PRO) email the records request to applicable staff and officials and require them to actively respond regarding whether they have responsive records via the "reply" function in Microsoft Outlook (or equivalent). Who searches for the records? TIP: If the PRO searches for records, consider developing a "tip sheet" identifying locations to search for commonly-requested records, listing commonly-used search terms, and providing other key information (see below). <i>(These tips are generally applicable to all requests and some are particularly useful for non-routine requests.)</i>
1	Be clear on what the requester is seeking. • In determining the scope of the search, take care not to interpret the request too narrowly. • If the request is unclear, seek clarification from the requester. • Document any communication the agency has with the requester.

*DISCLAIMER: These practice tips are meant to provide tips on how to perform an adequate search; the tips aren't intended to be regarded as specific legal advice. Consult with your agency's attorney about this topic as well.

Aveterra Compost Facility

LEGISLATIVE REVIEW OF LAND USE REGULATIONS

SEPTEMBER 24, 2019

Overview

- ▶ Applicant's request
- ▶ About Aveterra
- ▶ Definition of Waste Transfer Facility
- ▶ Planning Commission considerations
 - Code amendment options



Applicant's Request

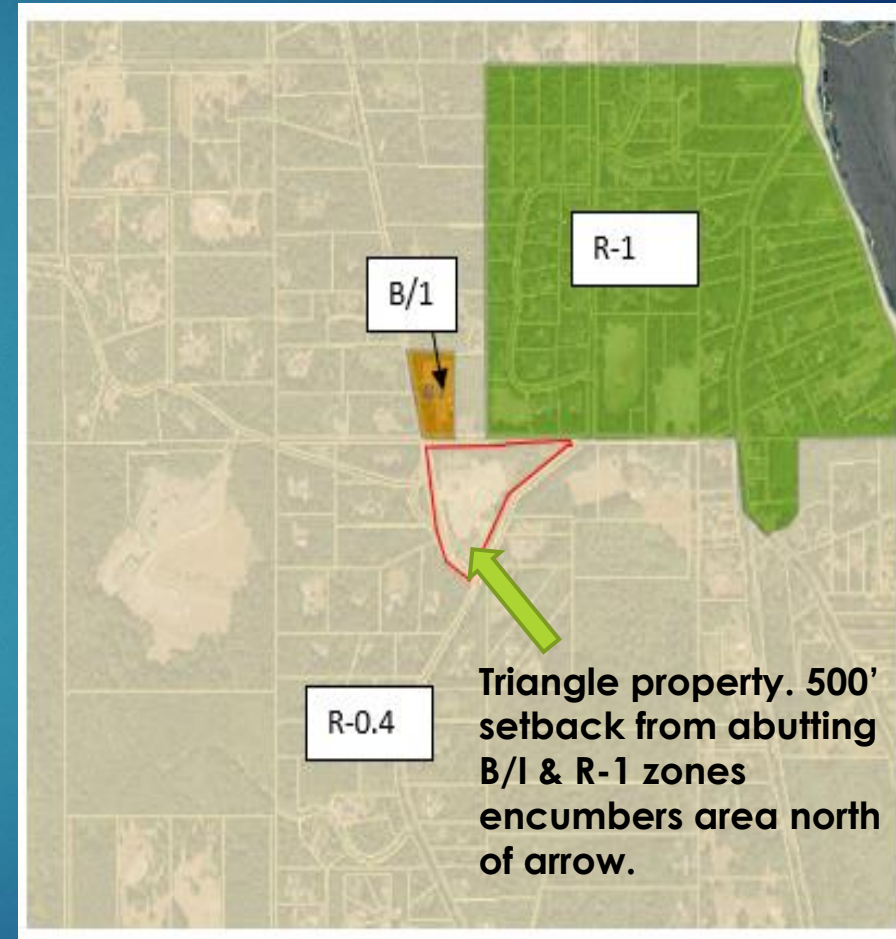
3

The applicant requests a legislative review of land use regulations (aka "code amendment") to:

- ▶ exclude the triangle property from a 500' setback that applies to waste transfer facilities, and
- ▶ to increase the allowed lot coverage from 10%



Example of input storage and environmental covering for processing and storage pads. Pads and walls will be sealed and a drainage system will capture all leachate.



About Aveterra:

what

Aveterra is a community-based compost facility that will remove organic waste from the waste stream and create island-specific soil products

- ▶ **Phase I:** Up to 12,000 tons annually, based largely on stable waste and green waste. (1-2 years)
- ▶ **Phase II:** 16,000 tons annually, selection of clean waste streams to augment existing recipes. E.g. pre-consumer food waste. (1-2 years)
- ▶ **Phase III:** 20,000 tons annually, selection of more general waste streams. E.g. Potential to service the digestate of an anaerobic digester

Our mission is to improve the quality of our waterways, soil, plants and food by taking in organic waste and creating high-quality Certified Organic soil products.

About Aveterra: how

5

1. Organic waste brought to the site, examined and placed on input pad before loading into system.

2. Auger based system works the material for 21-28 days.

3. Material is moved to the curing pad for final process. There it is prepared for sale – mixed, screened, bagged.

*green area on image indicates pad size used for Phase 1 of operation.



About Aveterra:

impacts

- ▶ **Leachate** (runoff with a high nutrient content that can support algae blooms in waterways, and is hazardous if not treated properly or prevented)
 - ▶ All organic material contained via pads on the ground and roofing
 - ▶ Runoff from the site collected per DOE, Kitsap Health, and City requirements
- ▶ **Noise**
 - ▶ Motors run 3-4 times per day for 20-40 minutes
 - ▶ Motors do not generate noise that would be discernable off property
 - ▶ Truck traffic for the most part already exists on the surrounding roads
 - ▶ No more noise than existing conditions
- ▶ **Odor**
 - ▶ The auger-based system, aeration, containment, and proper processing, recipe, and mixing prevents odors

About Aveterra:

why the triangle property

- ▶ Used as industrial sand mine since 1970's
- ▶ Close proximity to the transfer station (~400 yards)
- ▶ On the existing truck routes to and from transfer station
- ▶ Surrounding properties include: fire station, power sub station, storage facility
- ▶ Property is for lease/sale
- ▶ Requires no tree clearing



Definition of Waste Transfer Facility:

“waste transfer facility” means establishments that receive solid or liquid wastes from others for disposal on the site or for transfer to another location, uses that collect sanitary wastes, or uses that manufacture or produce goods or energy from the composting of organic material or processing of scrap or waste material. ([BIMC 18.36.030](#) #272)

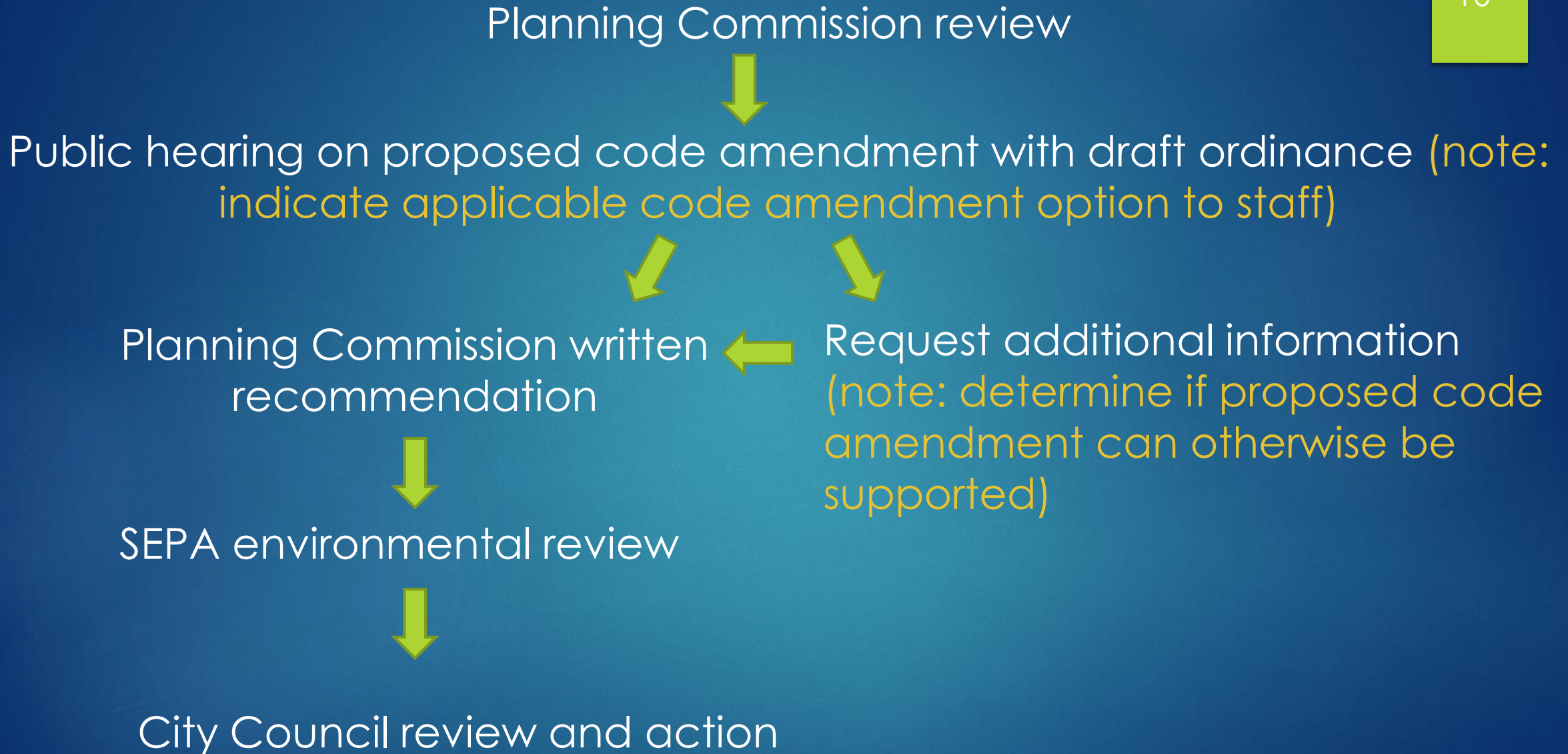
Planning Commission Considerations:

code amendment options

9

	Waste-transfer facilities	Compost facilities	Waste-transfer facilities on triangle lot	Compost facilities on triangle lot
The 500' setback should be waived for...	n/a – This goes beyond the scope of the applicant's request and the staff analysis.	e.g. No waste transfer facility operation shall be conducted within 500 feet of a property located in any zone district other than the R-0.4 zone district, <u>except for facilities or uses that manufacture or produce goods or energy from the composting of organic material.</u>	e.g. No waste transfer facility operation shall be conducted within 500 feet of a property located in any zone district other than the R-0.4 zone district <u>except on parcel number [xxx].</u>	e.g. No waste transfer facility operation shall be conducted within 500 feet of a property located in any zone district other than the R-0.4 zone district, <u>except for facilities or uses that manufacture or produce goods or energy from the composting of organic material located on parcel number [xxx].</u>
This language could amend BIMC 18.09.030 .G.3.a, the use-specific standards for waste transfer facilities.				
An increase in lot coverage should be allowed for...	e.g. <u>For waste-transfer facilities lot coverage shall have a maximum of [30%].</u>	e.g. <u>For facilities or uses that manufacture or produce goods or energy from the composting of organic material lot coverage shall have a maximum of [30%].</u>	e.g. <u>For waste-transfer facilities located on parcel number [xxx], lot coverage shall have a maximum of [30%].</u>	e.g. <u>For facilities or uses that manufacture or produce goods or energy from the composting of organic material located on parcel number [xxx], lot coverage shall have a maximum of [30%].</u>

This language could be a new footnote added to [Table 18.12.020](#)-2 Standard Lot Dimensional Standards for Residential Zone Districts.



Aquifer Information

- ▶ Code does not distinguish between different aquifer recharge areas
- ▶ Site contributes to shallow aquifer recharge
- ▶ More susceptible to groundwater contamination
- ▶ Options:
 - ▶ Require hydrogeologic assessment ([BIMC 16.20.100.B.3.b](#)) to evaluate impacts to water quantity and quality
 - ▶ Require aquifer recharge mitigation plan if adverse impacts identified

Controlling Composting Odors

f v in & @

Composting is never odor-free, even under optimum conditions for aerobic decomposition of organic matter. Here are some tried and true strategies to maintain successful operations.

Craig Coker

BioCycle February 2016, Vol. 57, No. 2, p. 18



Once a pile or windrow is built, a 3- to 4-inch cap of compost placed over it will act as an in situ biofilter for fugitive emissions.

Odors are gaseous chemicals that are emitted into the air from a variety of sources. Some are considered pleasant by many, like methyl salicylate (the smell of wintergreen Altoids®) or homofuronol (the smell of baked bread). Others are less tolerated, like skatole (the smell of manure) or dimethyl disulfide (the smell of rotting vegetables). These gases are detectable by the human nose at various levels of concentration in the air. Some of these chemicals can be detected at extremely low concentrations.

What's That Smell?

The human nose has 400 types of odor detectors, called olfactory receptors; each type is paired with a matching olfactory gene in that person's DNA. By contrast, the human eye has only three types of receptors (blue, green, and red ranges of the color spectrum) and human taste buds have only five types of receptors (sweet, salty, bitter, sour and savory). Humans have around 900 genes that can code olfactory receptors, allowing us to detect up to 10,000 different odors; how each is perceived depends on the DNA sequencing of those 400 types of odor receptors. This is why the smell of 2-heptanone (the smell of blue cheese) is pleasing to some, and unappealing to others. This is also why odor problems at composting and anaerobic digestion facilities are so difficult to resolve.

Organics recycling facilities, whether based on aerobic composting or anaerobic digestion, have one thing in common; they manage the process of decomposition. Decomposition is a biological and chemical process whereby complex biochemical compounds are broken down into their constituent building blocks. Aerobic decomposition is the cornerstone of composting. For example, the main ingredients of food scraps to be composted are proteins, carbohydrates and fats. These three components are made of various combinations of carbon, hydrogen, oxygen, nitrogen and sulfur. Decomposition of these compounds follows a well-evolved sequence of decay events.

Each decay event produces categories of decomposition products that have several subcategories, many of which are intermediate by-products of the process. For example, proteins decompose into their component polypeptides, which in turn, decompose into their component amino acids. At each stage of the decomposition process, there are a variety of different organic compounds produced, each with its own volatility characteristic. Think of the volatility characteristic of a compound as its potential to become a gas and produce odors.

Volatility is the tendency of a substance to vaporize, which is proportional to a substance's vapor pressure. At a given temperature, a substance with higher vapor pressure vaporizes more readily than a substance with a lower vapor pressure. As an organic material decomposes, the mix of volatile compounds change, so the mix of vapor pressures changes, which can change the characteristic odor. Some odors are produced by the biological changes in compounds by microorganisms; others are due to chemical changes in the composting pile.

A composting pile is a highly dynamic ecosystem, constantly changing over the 21- to 60-day life of the active composting phase. Factors that influence odor generation include: feedstock composition, activity rates of the decomposers doing the work, availability of the nutrients in the feedstocks to the microbes, how well mixed the feedstocks are, and several physical factors, such as moisture content, particle size, oxygen content and diffusion, and temperature. Odors also arise from other areas in the facility, including feedstock receipt and processing, curing and product management and from site conditions like puddles of rainwater.

Blowin' In The Wind

Good site design and not erring from the fundamentals of compost processing are important factors in minimizing the potential for adverse odor episodes at composting facilities. Successful operations require careful consideration of siting factors that can influence how neighbors react to odor episodes. The first step is to construct a wind rose (Figure 1), an illustration of the direction and speed of the wind.

Once the prevailing wind directions and speeds are known, potential impact of the layout and operation of the site on receptors can be considered. For initial siting and site layout, locate waste management aspects of the facility at least 1,000 feet (and preferably 1,500 feet) from any sensitive receptors in the predominantly downwind direction (south, south-southwest, and southwest in Figure 1). A sensitive receptor can be defined as any place where members of the public may gather, such as a house, a school, a park, a church or a shopping area. Plan on a thickly vegetated buffer of fully developed vegetation in that direction so that vegetative surfaces can intercept and filter particulate matter that may contain odorous compounds. Orient the site so that odor-producing activities are sheltered by trees, hills, buildings, walls and other features that break up the wind pattern to create turbulence.

Other site planning and development steps that can reduce potential for odor problems include: leaving room for equipment to get to piles or windrows for implementing odor best management practices as needed (such as installing a compost cap or watering windrows prior to turning), and designing the site for rapid and effective runoff and drainage management to prevent odorous puddles from forming.

Best You Can Be

Composting is never odor-free. Even under optimum conditions for aerobic decomposition of organic matter, odors are going to form. However, failure to maintain conditions for the optimum microbial environment is guaranteed to make odors worse, particularly those odorants that people find annoying or unpleasant. The more odors that are formed due to poor composting conditions, the more quantities of that odorant escape into the atmosphere, and it becomes much harder to disperse those quantities below annoyance thresholds.

Microbes live in a thin watery biofilm around each particle in the pile and draw their life-sustaining oxygen from the air flowing through the pore space in the pile (Figure 2). So the first step in controlling the microbial activity is a mix that adheres to good Best Management Practices: the right nutrient balance between carbon and nitrogen (at least 25 parts of carbon (C) for each part of nitrogen (N), on a weight basis), adequate moisture to form and maintain the biofilm (around 50-55%) and enough structural porosity to ensure a

Figure 1. Wind Rose

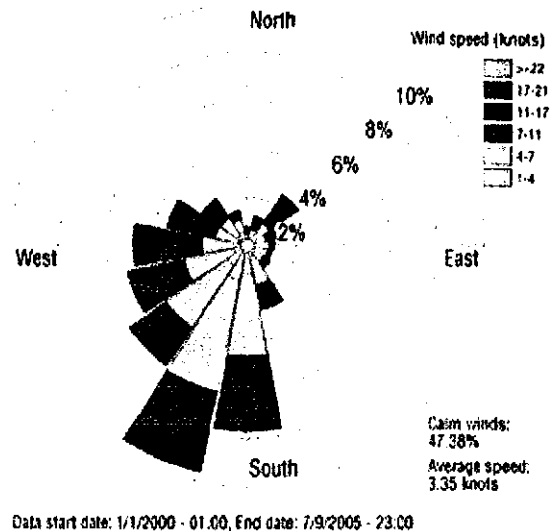
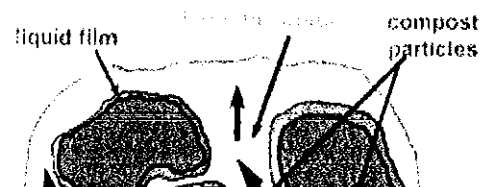
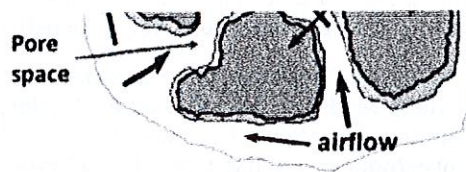


Figure 2. Optimum Composting Conditions



free air space of at least 40 percent to keep oxygen levels above a 8 to 10 percent minimum.



Source: US
Composting Council

Water, Water Everywhere

Assuming the C:N ratio is dialed-in correctly, the correct moisture content advances the rate of decomposition. If the biofilm around the particles dries out, microbial activity will go dormant and composting will stop. As piles dry out, the concentration of potential odorants in the biofilm increases, with a risk of odor emissions. Conversely, if moisture is allowed to climb above 60 percent or so, the free air space channels between the particles clog with water. This thicker biofilm reduces the amount of oxygen available to the microorganisms on the surface of the particle as the rate of oxygen transfer in water is much slower than the rate of transfer in air. Material with an optimum moisture content of around 50 to 55 percent has the consistency of a wrung-out sponge that is wet but not freely dripping water. One of the challenges in composting food scraps with large amounts of vegetable and fruit material is that the plant cell walls break open readily under the heat of initial decomposition, flooding the pile with water. Without adequate structural porosity to allow that flush to drain out, the pore spaces in the pile will fill with water and risk formation of anaerobic conditions.

The transfer of oxygen across the biofilm requires a steady flow of air through the pile. Whether by natural or passive means, or forced through a pile by a blower, aeration serves several critical functions in process management, including replenishment of oxygen, removal of carbon dioxide (and volatile odorants), and removal of heat. Composting piles and windrows have both macro-aeration and micro-aeration characteristics. Macro-aeration refers to the overall uniformity of the structural porosity of a pile. A composting pile of wet dairy manure mixed with sawdust has low macro-aeration characteristics. A composting pile of chipped tree waste has good macro-aeration characteristics. Good macro-aeration characteristics are necessary where passive aeration is the primary means of oxygen transfer, like in windrows. Micro-aeration characteristics refer to how well air moves inside the pile. Fine particles, such as those produced by processing woody wastes with a hammermill, can impede aeration rates in various areas in a pile, creating air-starved sections.

In addition to good site design and good process management, there are a number of proactive, positive strategies compost site managers and staff can implement that will greatly reduce the risk of off-site odor episodes. It is helpful to break down the various composting process activities that cause odors into a series of discrete elements, and then analyze each activity within that specific element to identify ways odors are being formed, volatilized, and dispersed off-site. By investigating each processing step composters may be able to identify specific management practices that could help minimize these odors.

Do We Really Want This?

An important first step is to understand the odor-causing potential of each feedstock and either reject it or be sure the facility can effectively handle the material. A feedstock acceptance protocol is a good tool to understand the nature of incoming materials before deciding to accept them. A sample of a potential feedstock can be put into a sealed bag in order to mimic the anaerobic decomposition process. Place the sealed bag in a warm place for two to three days (a car dashboard works well) and then have someone whose sense of smell has not been compromised by working at the composting facility open the bag and give an indication of the intensity and unpleasantness of the smell. If objectionable odors are noticed, then the composting facility operator will know to have plenty of coarse bulking agent on hand when this feedstock arrives, in order to ensure that aerobic conditions prevail during composting.

Prompt handling of feedstocks is another important odor-minimizing strategy. If possible, the operator should get incoming feedstock processed and mixed with amendment within one hour of receipt. If that is not possible, then the pile of feedstock should be covered with a 3- to 4-inch layer of unscreened compost or woody grindings. In any case, mixing and emplacing of those feedstocks in a windrow or in an aerated pile should be attempted by the end of the day. If a load comes in late, it might be necessary to cover it with compost or grindings and then mix it up first thing the following morning.

As noted, getting the mix right and keeping piles aerobic is the most important aspect of process management in odor control, but there are other operational considerations that will help. Watch the loader operators to be sure they are not driving up on a pile or windrow to place materials, which will compact under the weight of the loader and compress out the free air space. Once a pile or windrow is built, put a 3- to 4-inch cap of compost over it to act as an in situ biofilter for fugitive emissions. If windrow composting, don't turn that windrow for the first 7 to 10 days. This allows primary decomposition of highly degradable organics to occur with some degree of control. (Note: piles must have good structural porosity for this to work.) For those windrows with adequate free air space,

and assuming there are no regulatory obstacles, consider reducing turning frequencies for the first two weeks, turning only to distribute moisture from a rainstorm or for improving water distribution when irrigating.

Keeping an eye on the weather, the calendar and the clock also will help. Activities that generate odors, like mixing, turning windrows, and moving fresh piles, should be minimized at certain times, provided that operations can tolerate the disruptions. For example, when the air is heavy and still — which can be defined as a wind speed below 4 miles/hour and a less-than-10°F difference between the ambient and dew point temperatures — keep odor-causing activities to a minimum. In addition, conducting odor-producing activities between 10 AM and 3 PM, when the sun has heated the atmosphere to promote good vertical mixing, and refraining from those activities late in the afternoon on Fridays and the days before holidays (when neighbors are likely to be out in their yards or at public places) can also minimize odor episodes.

Keep It Clean

The two most important site management practices to reduce odors are rigorous housekeeping and water management. Housekeeping is always important at a composting facility, as every bit of stray organic matter not incorporated into a pile is a potential odor source. It requires dedication to focus an hour per day on housekeeping patrol, where stray bits of mashed food scraps or clumps of grass clippings are picked up and put into a pile. Managerial complacency about housekeeping can quickly spread through the facility workers, and soon, there are so many potential fugitive odor emissions that it becomes almost impossible to get the site cleaned up and back into shape.

Rainwater puddles and storm water ponds are a potentially onerous source of odors. Compost fines wash into every puddle and pond on a site. They exert strong biological and chemical oxygen demand that will quickly deplete the dissolved oxygen (DO) in the water — faster than the oxygen can be replenished across the water-air interface. This creates anaerobic conditions in the water with the resultant formation of hydrogen sulfide. Larger storm water ponds, if not mixed and aerated, will stratify during the summer into different levels of temperature and DO. Compost fines washed into those ponds will accelerate consumption of DO, so, in the fall season when stratification ends with cooler temperatures, the layers in the pond will mix together, bringing anaerobic waters to the surface with a release of odors.

* Managing odors in composting is never easy and requires a constant vigilance. Failure to do that, however, is usually a prescription for headaches, negative public relations and regulatory problems that can quickly lead to fines and shut down orders. As the great American, Benjamin Franklin, once said, "An ounce of prevention is worth a pound of cure."

Craig Coker is a Senior Editor at BioCycle. He can be reached at ccoker@jgpress.com.

Tags: Composting, Odor

This entry was posted on Tuesday, February 16th, 2016 at 11:50 am and is filed under Uncategorized. You can follow any responses to this entry through the RSS 2.0 feed. Both comments and pings are currently closed.

Comments are closed.

JANUARY 2018

ODOUR FROM A COMPOST FACILITY

Odour from a compost facility

Primary inquiry: A citizen's group reported that putrid smells were occurring daily from a local commercial compost facility located in a suburban area of the city. The local public health agency was contacted to provide information to answer the following questions:

- 1) What types of contaminants are potentially emitted in air from commercial composting facilities?
- 2) What causes odours associated with the composting process?
- 3) Are there health impacts to nearby residents from exposure to compost emissions?
- 4) How can the odour from compost facilities be minimized?

Background

Composting involves the collection and processing of the organic fractions of municipal solid waste including plant materials such as leaf and yard waste, and fish and food waste.¹ In Canada, as of 2013, 41% of households had access to curbside composting programs to collect household food and yard organic waste for commercial composting.² Residential composting not only reduces the amount of waste shipped to a landfill, it can also reduce greenhouse gas emissions formed from organic material decomposing in landfills.²

Composting is a method of waste management involving biological degradation and stabilization of organic matter under aerobic conditions.³ Use of high temperatures and oxygen encourages optimal growth of thermophilic microflora to breakdown organic materials. Traditional open composting



involves the periodic turning of windrows (piles of biodegradable waste in long rows), typically by front-end loaders. An alternative method of static aerated piles may use a network of pipes to deliver air into or draw air out of a pile. The newer, more sophisticated in-vessel composting is a closed container system which feeds organic materials into a vessel, such as a large drum or silo, and confines open-air processes to the final maturation process, when biological activity slows.⁴

Commercial compost facilities are located in every province and territory in Canada. As of 2016, there were approximately 350 composting facilities across the country.⁵ Complaints from citizens about odours from a composting facility are not uncommon. As stated in an industry-based newsletter,⁵ "The

Prepared by

Helen Ward, National Collaborating Centre for Environmental Health
Michele Wiens, National Collaborating Centre for Environmental Health

Disclaimer: The information provided here is for the purpose of addressing a specific inquiry related to an environmental health issue. This is not a comprehensive evidence review and has not been subjected to peer review. The information offered here does not supersede federal, provincial, or local guidance or regulations, and/or the advice of a medical professional (where applicable).



National Collaborating Centre
for Environmental Health

Centre de collaboration nationale
en santé environnementale

thorn in the side of the industry does continue to be odour."

Examples of municipalities where residents have complained about odours arising from commercial composting facilities include Ladysmith, Vancouver Island, British Columbia; Richmond, British Columbia; Strathmore, Alberta; Winnipeg, Manitoba; South London, Ontario; and Sydney, Nova Scotia.

Methods

A rapid academic literature search was undertaken for articles related to potential health effects, perception and annoyance, and measurement of compost-type odour and contaminants from an organic composting facility. Articles were identified using EBSCOhost (to access MEDLINE, CINAHL, PsycINFO, Biomedical Reference Collection, and Academic Search Complete), Ovid (to access Elsevier Science Direct, Evidence Based Medicine, SAGE journals online, and Cochrane Database of Systematic Reviews), and Google Scholar (to access books, book chapters, older articles, and articles from journals not indexed through major database platforms).

The search terms included: (odor OR odour OR smell) AND (compost OR organics or anaerobic digest*) AND (health OR illness OR annoy* OR irritat* OR somatic OR sensory).

Inclusion criteria were publication date (from 2000), English language, and human subjects. Excluded were occupational health studies of compost workers. Internet searches were done using Google to access relevant pre-2000 articles and informative documents, including Canadian public health documents concerning compost facility requirements.

Results

1) WHAT TYPES OF CONTAMINANTS ARE EMITTED IN AIR FROM COMMERCIAL COMPOSTING FACILITIES?

During the process of aerobic decomposition, air emissions of bioaerosols and microbial volatile organic compounds (VOCs) are produced, particularly when agitation activities are used to break up clumps of compost material.⁴

Bioaerosols refer to microorganisms (e.g., bacteria including gram-positive actinomycetes; fungi such as moulds; viruses; algae; and pollen) and to biomolecules (e.g., endotoxins from the outer membrane of gram-negative bacteria; beta glucans from fungi cell walls).⁴ The concentration and composition of bioaerosols originating from a composting site depend on the characteristics of the microorganisms, the size and technology of the facility, and the prevailing winds.³ Bioaerosols released

into the air from compost facilities returned to background levels (measured upwind), at distances anywhere from 100 to 1400 m away from the facility.³ For example, thermophilic actinomycetes (gram-positive bacteria) were not detected upwind of a composting site, but were detected at noticeable concentrations as far as 550 m downwind.⁶ Compared to 100 m upwind from a green-waste facility (equivalent to background levels), measurements of gram-negative bacteria in the air were higher up to 400 m downwind, while endotoxin levels remained higher up to 100 m downwind from the facility.⁷

VOCs are chemicals emitted from plant debris and microorganisms such as fungi and bacteria in the process of aerobic degradation. There is very little correlation found between concentrations of bioaerosols and microbial VOCs.⁸ Emissions from composting facilities typically belong to any of the following chemical classes of VOCs: aromatics, sulphur compounds (mercaptans, and organic sulphides), aldehydes, alcohols, amines (ammonia), volatile fatty acids, terpenes, ketones, benzene, toluene and ethylbenzene.^{9,10} The most common VOCs characterized in samples from one compost facility were acetic acid, acetone, limonene, benzene derivatives, hexane, pinenes, toluene, naphthalene, and xylene. Another study identified 74 compounds in the ambient air of a composting plant, with ethyl alcohol detected at the highest concentration of all compounds.⁹ Measurements of microbial VOCs at set distances away from two commercial composting facilities identified terpenes (pinene, limonene, and camphene) at levels over 100 ng/m³, 800 m downwind from the facilities.¹¹

In addition to the composition of feedstock, the type of composting will affect the concentration of compounds emitted. Use of an aerated static pile resulted in lower concentrations of ammonia (72%), and formic acid (57%), and acetic acid (11%) when compared to values obtained from a nearby windrow.¹²

2) WHAT CAUSES ODOURS ASSOCIATED WITH THE COMPOSTING PROCESS?

Detecting odours is a physiological process whereby inhaled odourant molecules are detected by one or more of the thousand types of odour receptor cells in the olfactory epithelium of the nasal cavity. The neurons of the olfactory epithelium "translate" the chemical message into nerve impulse emissions which are sent to the piriform cortex in the cerebellum (which is involved in determining odour intensity) and then projected to various brain areas, including the amygdala (which distinguishes pleasant from unpleasant odour). Conscious perception of smell takes place in the orbitofrontal cortex.¹³

Odours are distinguished by their detection threshold (i.e., the level at which the odour is first detectable), intensity, hedonic

tone (pleasantness or offensiveness), discrimination threshold (level to discriminate between two odours), quality of the odour (i.e., the type of smell, such as floral or woody), and recognition threshold (i.e., the level at which the odour quality can be identified).¹⁴ How odour is perceived is also influenced by personal experience, attitude, expectation, and adaptations of the individual.¹¹

Perception of odour can result in "annoyance"; a feeling of displeasure associated with any agent or condition, known or believed by an individual or group to adversely affect them.¹⁵ A survey of residents near waste treatment facilities found annoyance to be related to the frequency and intensity of waste odours as well as by the hedonic tone of odour, with neutral and unpleasant odours more likely to cause annoyance.¹⁶ Odour annoyance was reported by 80% of residents living within 500 m downwind of a composting plant in Germany. Ten percent characterised it as "disgusting."¹⁷

The usual odour sources considered in compost facilities are from the main processing activities that involve fugitive emissions from vessels and aeration systems, or active composting piles (if not enclosed). Other odour sources are from truck transport of waste materials, loading or mixing of material, and storage until processing, material handling, screening and storage.¹⁸

Microbial VOCs are considered to be the main source of odour from compost facilities as many of these compounds can be smelled at extremely small concentrations, below what is known to be harmful to human health.¹⁶ Odours associated with specific types of VOCs include the rotten egg or rotten cabbage smell of reduced sulphur compounds, the vinegar smell of volatile fatty acids, the fishy smell of ammonia, the smell like nail polish remover of ketones, and the sharp unpleasant odour of aldehydes.¹⁸ Major emissions of odours and VOCs occur during the process of turning over the compost piles for aerobic biological treatment, and vary with time and type of handling, as well as temperature and humidity.¹⁹ For example, when organic matter is being degraded, microbial activity increases the composting temperature, which corresponds to the release of large amounts of odorous compounds.

Levels of certain VOCs near compost facilities were found to correspond to odours perceived by trained observers, doing "sniffing" evaluations.¹¹ In this commonly used method for odour detection, prequalified odour panelists sniff decreasingly diluted air samples until an odour can be detected. Compost odour was recognizable at a distance 800 m downwind from the compost facilities. At that distance, terpenes (pinene, limonene, camphene) were the highest VOCs measured.¹¹ Other known VOC odourants, such as 2-methyl-1-butanol, 2-heptanone and dimethyl-disulphide, were suggested to also have a role in creating this characteristic compost odour, even when not measured in detectable concentrations.

3) ARE THERE HEALTH IMPACTS TO NEARBY RESIDENTS FROM EXPOSURE TO COMPOST EMISSIONS?

Exposure to VOCs has the potential to induce acute toxicological effects such as inflammatory and immune effects, as well as sensory irritation in the eye, nose, or throat.¹⁶ However, measured concentrations of microbial VOCs nearby composting facilities are below levels thought to be capable of causing symptoms of intoxication or sensory irritation. While some VOCs are odorous, even at very low concentrations, they are not considered to be the primary cause of health symptoms for residents near to composting facilities.¹¹ There may be interactions between different types of VOCs with non-odorous co-pollutants, such as particulates, which can contribute to health symptoms.²⁰

Chronic exposure to elevated levels of bioaerosols is known to affect respiratory health. Potential health effects to bioaerosols include allergic asthma, rhinitis, hypersensitivity pneumonitis, chronic obstructive pulmonary disease, and organic dust toxic syndrome, as well as eye and skin irritation.⁴ An experimental study of airborne endotoxins around composting sites found an association between endotoxin levels and cytokine induction in human cells, suggesting a mechanism for health effects resulting from infection, immune responses, or inflammation.²¹

There is some epidemiological evidence relating exposure to compost emissions to symptomatic complaints by residents, although findings are inconsistent, as shown in Table 1 below.



Table 1. Studies on health impacts to residents from compost emissions.

Location and Study	Odour Measure	Increased Risk of Symptoms
Finland – waste treatment centres with composting plants. ¹⁵	Residents <1.5 km vs. 3 or 5 km	cough/phlegm, nose irritation/stuffy nose, hoarseness/dry cough, fever/shivering
	Perceived Odour vs. none	hoarseness/dry cough, headache, diarrhoea
	Odour Annoyance vs. none	unusual shortness of breath, eye irritation, dry throat, toothache, unusual tiredness, fever/shivering, joint pain, muscular pain
Germany – large-scale composting site. ⁶	<200 m from site, highest (to >105 CFU/m ³) bioaerosols vs. near background levels	shortness of breath (following exertion and while at rest), bronchitis, coughing (waking up or on rising/during the day), sore eyes, diarrhoea, excessive tiredness, shivering
	Odour annoyance vs. none	Smarting eyes, itchy eyes, joint trouble, muscular complaints

A recent cross-sectional study in Finland¹⁶ found that residents who lived <1.5 km from waste treatment centres (with composting plants) have increased risks of specific symptoms. However, since almost all residents lived more than 600 m away from the facility, it was unlikely that exposure to bioaerosols were related to the symptoms, given that previous measurements of bioaerosols returned to near-background levels less than 600 m from the facilities. The authors concluded that physical symptoms were mainly associated with odour annoyance rather than odour perception, for residents living near composting plants.¹⁶ A cross-sectional questionnaire-based study of residents in a German town living much closer to a large-scale composting site (within 500 m) improved upon exposure assessment by measuring outdoor bioaerosol pollution (thermophilic actinomycetes, fungi, moulds, and total bacteria/m³ in air).⁶ The airborne micro-organisms measured in residential air at 150 to 320 m from the composting site were 100-1000 times higher than background concentrations. Perceived odour annoyance was related to a few general symptoms, but with the large number of complainants (80%) it was difficult to compute reliable odds ratios.

Note that the cross-sectional study design used in both studies is prone to reporting and selection biases when questionnaires are used, and is subject to limitations with interpreting causality (does the exposure precede the symptoms or are symptoms affecting odour perception or annoyance?).⁴

Rather than a questionnaire survey of symptoms, a recent study in England assessed hospital admissions for respiratory disease for residents living within 2,500 m of a compost facility, based on concerns about bioaerosol exposure.²² For the population living closest to a facility, at 250 to 750 m, no increased risk was

found for respiratory hospital admissions, respiratory infections, asthma, or chronic obstructive pulmonary respiratory disease. The authors noted study limitations, such as very few people living within 250 m of a compost facility, where concentration of bioaerosols are most likely to exceed the UK environmental agency guidelines. The design did not capture minor respiratory health problems, such as cough or bronchitis.²²

The limited literature suggests that there may be respiratory and irritant symptoms associated with bioaerosol exposure, but only for residents living very close (around 250 m) away from certain compost facilities. The low levels of VOCs may contribute to odour, but not have a direct effect on symptoms. Rather, it is the psychosocial aspects of odour annoyance that may have a bearing on symptomatic complaints.

4) HOW CAN THE ODOUR FROM COMPOST FACILITIES BE MINIMIZED?

There are no federal regulations relating to odour emissions from industrial facilities, including compost facilities. Most provinces, and some municipalities, have established regulations and guidelines for waste management facilities, including composting. Siting of the facility is an important consideration. Minimum setback distances for compost facilities within Canada are typically 300 m from a permanent residence, hotel, restaurant, school, church, or public park.¹ An example of a provincial standard for composting facilities is from Alberta,²³ which includes an odour contingency response plan to minimize or remedy offensive odour. This may involve removing or disposing of the substance causing the offensive odour, containing or controlling the odourant, or by installing or modifying equipment or making

improvements to the structure of the compost facility. Further details regarding odour control in compost facilities are provided in a report for Metro Vancouver.¹³ Best practices for odour management include siting considerations to maximize the distance of the facility away from public spaces, prohibiting certain types of waste and meat products being sent to compost facilities, restricting open composting to yard and garden waste, and otherwise ensuring that processing areas are enclosed.

From a policy point of view, a closed "vessel" system has the advantage of reducing odour emissions during the initial composting process, when odour emissions are highest.²⁴ Moreover, vessel systems can be equipped with a biofiltration system and scrubbers to minimize these emissions and are economical to install and maintain.²⁴ Properly designed and operated biofilters at composting facilities can routinely remove over 90% of incoming odours.¹ The effectiveness of biofiltration was illustrated by progressive reductions in measured VOC emissions in a compost facility after installation of a biofilter unit.⁹ However, odour emissions are still possible despite use of biofilters. For instance, terpenes have been detected in the effluent air stream of compost facilities equipped with biofilters, and in one facility, the outlet of the biofilter contained dimethyl disulphide, which is known to be malodorous.¹⁹

Summary

Composting facilities are an essential part of sustainable waste management, performing the important function of diverting organic matter from landfills. However, residents living close to commercial composting facilities often complain about odours and may experience symptoms thought to be caused by exposure to compost emissions. Odours from the biodegradation process are attributed to low concentrations of volatile organic compounds that are considered to be too low to cause physical symptoms. However, some residents may be at risk of respiratory health symptoms from exposure to emissions of bioaerosols when living near to the facilities (typically a distance less than 250 m). Symptoms also may be attributed to annoyance to perceived odours. In addition to promoting large setback distances from composting facilities, closed vessel systems equipped with biofiltration systems can be effective at reducing odours associated with commercial composting facilities.

Further research is needed to determine what specific types and levels of odourants are emitted during the different processes involved in commercial composting according to the type of organic waste processed and engineering practice, and how best to mitigate the odours. Successful odour control in commercial compost facilities will involve development and enforcement of an odour management plan, odour-monitoring, and the opportunity for community engagement.

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