Bull Run
TREATMENT
PROJECTS

Our water: Safe and abundant for generations to come

PORTLAND WATER BUREAU

Bull Run Filtration Project

Site Advisory Group Meeting 7

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

Agenda

1. Introductions
2. Project Update
3. Lighting Design Considerations
4. Sound Design Considerations
5. Next Meeting

Conference call meeting tips

Using the Zoom tool bar, you can:

- Mute/unmute your microphone
- Turn on/off your video
- Click participants icon and 'raise hand'
- Use chat to type a question

- We'll post the meeting recording on the website with a summary

Who’s on the line?

- Introduce yourself
- Are you a Zoom novice or expert?

What **surprised you or stood out** about light and sound during the water treatment facility tours?

How is this format working for you?

STEP 1:
Receive information from us by **email**

STEP 2:
Share feedback with us by **email or online survey**

STEP 3:
Discuss input with the group in a **conference call/webinar**

Project Update

- Shared *Draft Filtration Facility Overview*
- Submitted WIFIA loan application
- Conducting field investigations in project area
- Continuing design work for filtration facility

Your input is shaping our meeting roadmap

	Advisors	Community	Total
Traffic	14	18	32
Light and Noise	11	11	22
Chemicals	10	12	22
Wildlife and Environment	11	7	18
Facility Size and Appearance	12	2	14
Landscaping	7	2	9
Communications	3	2	5
Property and Infrastructure	1	2	3

Lighting Design Considerations

Jeff McGraw, Speaker

Site Advisor questions (survey excerpts)

What would you like to know more about?

- How light impacts are *measured and monitored*

What questions do you have?

- Define "brighter than necessary”
- Is it possible to determine what the site photometrics will be at the property boundary after the site landscaping reaches maturity to compare to the photometrics at facility startup?

Design Concepts: Lighting

Lighting Design Objectives

- Meet Good Neighbor Agreement lighting goals
- Provide appropriate lighting for safe site circulation and facility access
- Consider lighting levels for security around and within the facility
- Comply with Multnomah County code and Dark Sky Standards
  (The entirety of the site is located within Multnomah County, and the site's southern property line is the beginning of Clackamas County)
- Provide an energy efficient lighting design
- Minimize maintenance and replacement of lighting sources
- Minimize night time impact to neighboring properties and structures

Lighting Needs

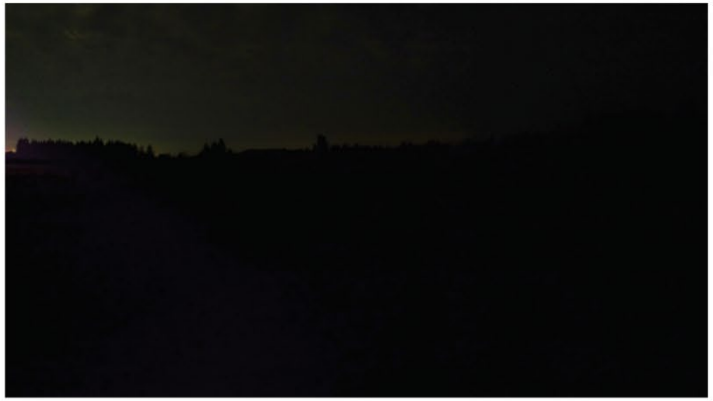
- Roads and signage
- Pedestrian paths
- Parking areas
- Basins
- Equipment areas
- Facility doors
- Facility interiors

Design Concepts: Lighting

Existing Conditions Near the Site

The site is located in a dark area of Multnomah County, east of the lights of Portland. Small zones of light pollution are present in the area due to unshielded street, building, and farm work lights.

Unshielded Lights on Bluff Rd.

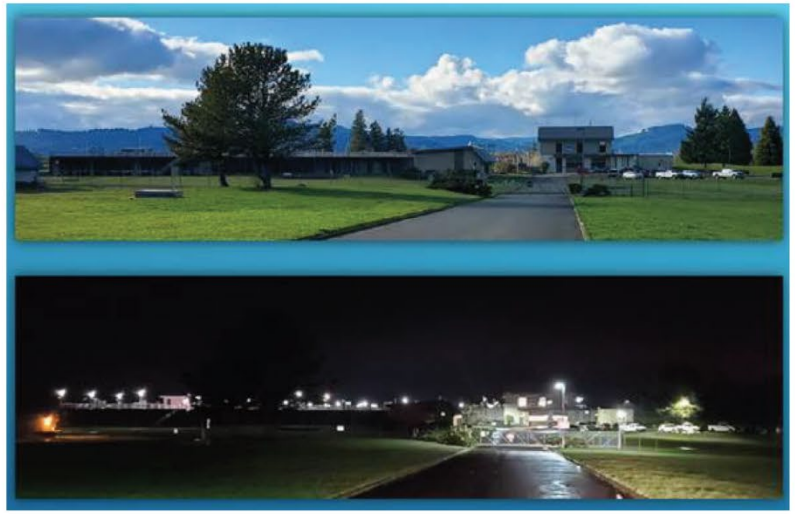


Looking North from Bluff Rd.

Looking West from Cottrell Rd.

Conditions at the JWC Facility

The JWC facility (below) has a mix of light fixture types, so some light escapes to the night sky.



Design Concepts: Lighting

Multnomah County Dark Sky Standards

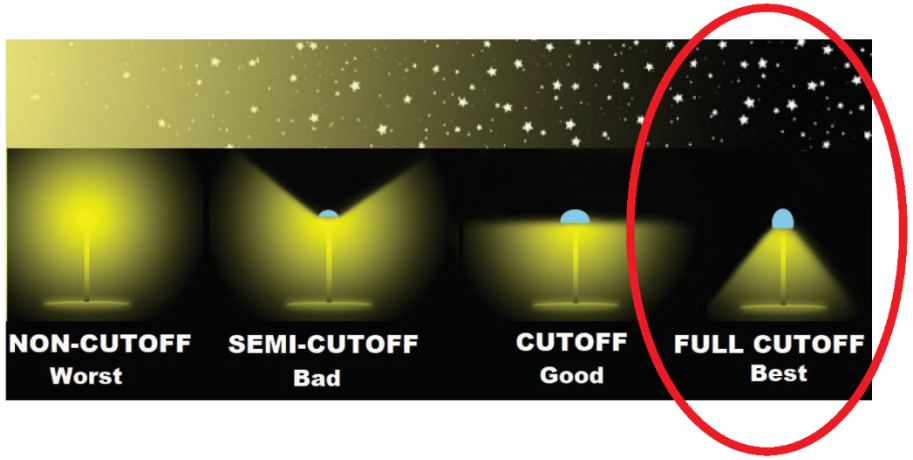
The facility lighting design needs to meet Multnomah County Code, which includes Dark Sky Standards.

Purpose of Dark Sky Standards:

Protect and promote public health, safety and welfare by preserving the use of exterior lighting for security and the nighttime use and enjoyment of property while minimizing the obtrusive aspects of exterior lighting uses that degrade the nighttime visual environment and negatively impact wildlife and human health.

Dark Sky Standards

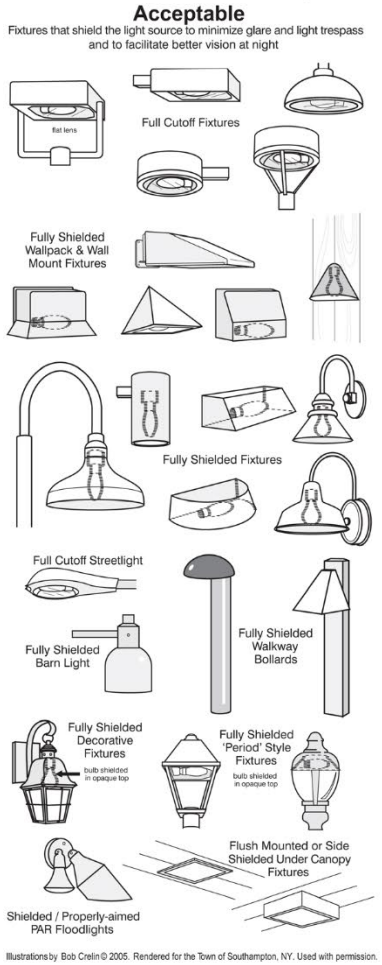
- Light to be contained within site boundaries
- Use of fully shielded light (see illustration below)
- Lights directed downwards
- Additional shielding of lights may be required
- Some exceptions for safety and emergencies
- Exceptions for underwater lighting

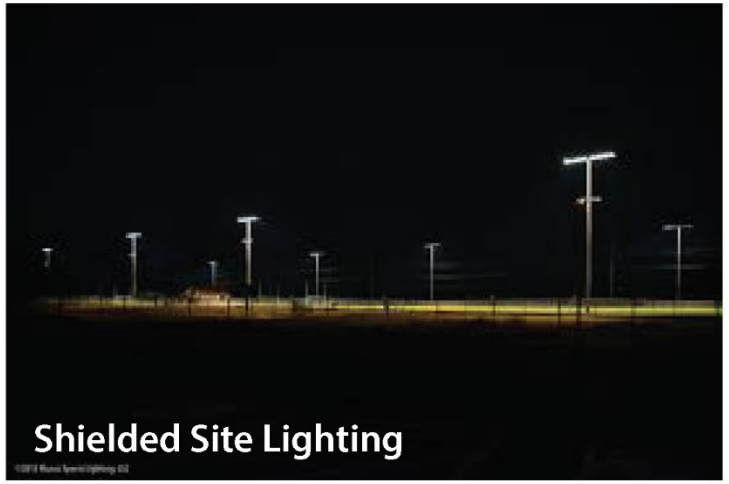


Design Concepts: Lighting

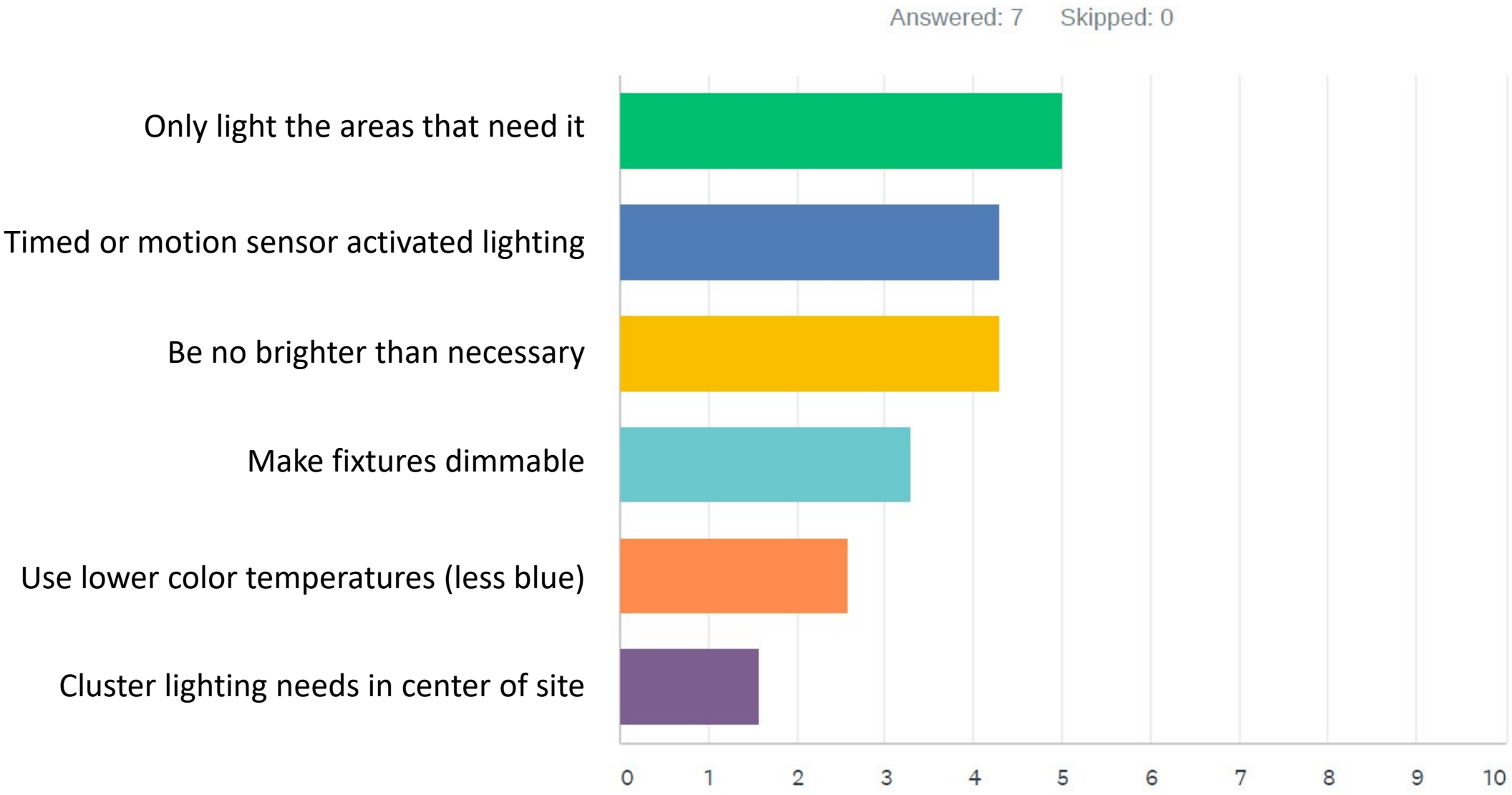
Potential Strategies

- Cluster lighting needs in center of site
- Make fixtures dimmable
- Use lower color temperatures (less blue)
- Timed or motion sensor activated lighting
- Only light the areas that need it
- Be no brighter than necessary





Rank potential light mitigation strategies



Site Advisor comments (survey excerpts)

- I don’t want to **see it from my house**
- I feel **motion sensored** would/could be most appropriate
- All lighting needs to **shine down** and not towards the neighbors
- Lighting **only where needed**, motion lights where needed
- Since we border on the east the future facility property, the **sound and lighting are very important** to us

Site Advisor comments (survey excerpts cont.)

- **Build low** to mitigate light and noise and contain any leaks from system
- The Lake Oswego facility is primarily self-contained units with lighting matching a residential setting. The tour presentation demonstrated the **unmuted use of lighting** in an area less inhabited than the proposed site. The document showing a night illumination from Dodge Park was misleading in its position to the site and was of a pre-existing facility prior to the construction of most homes in the area. It also is bordered by intersecting streets, an electrical station and existing large pine trees.

Sound Design Considerations

Casey Hagerman, Speaker

Site Advisor questions (survey excerpts)

What would you like to know more about?

- How sound mitigation measures are *selected*

What questions do you have?

- Is the sound 24/7 or will it be limited to daylight hours?
- Can site terrain shaping and landscaping mitigate sound impacts?

Design Concepts: Sound

Acoustic Design Objectives

- Meet Good Neighbor Agreement acoustics goals
- Provide for a safe work environment for facility staff
- Provide a safe environment for visitors
- Comply with Multnomah and Clackamas County code
  (Sound from the site can travel to adjacent Clackamas County properties)
- Reduce and address sound attenuation from equipment and site activities
- Minimize any sound-related impacts to neighboring properties and structures

Sound Sources

- Truck traffic
- Construction
- Equipment
- Treatment processes
- Alarms
- Emergencies

Design Concepts: Sound

Definitions

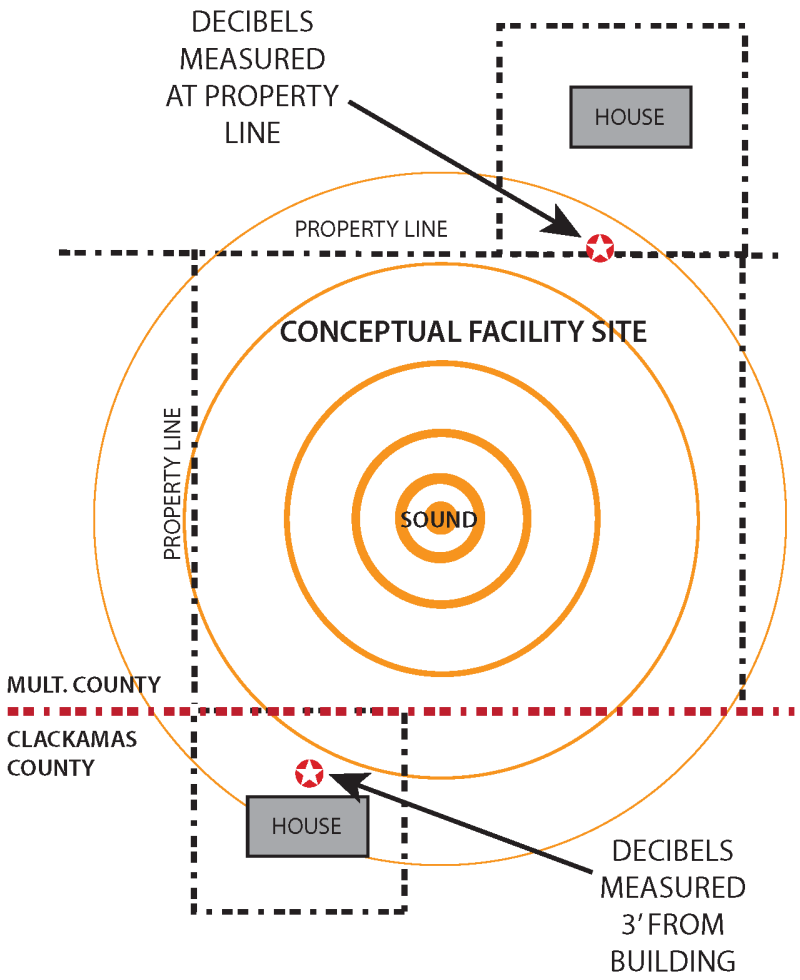
The facility acoustic design needs to meet Multnomah County and Clackamas County Code, which includes sound limits.

Decibel (dB) - A measure of sound intensity or degree of loudness.

Multnomah County Code Limits - Measured at or within boundaries of properties containing overnight accommodations.

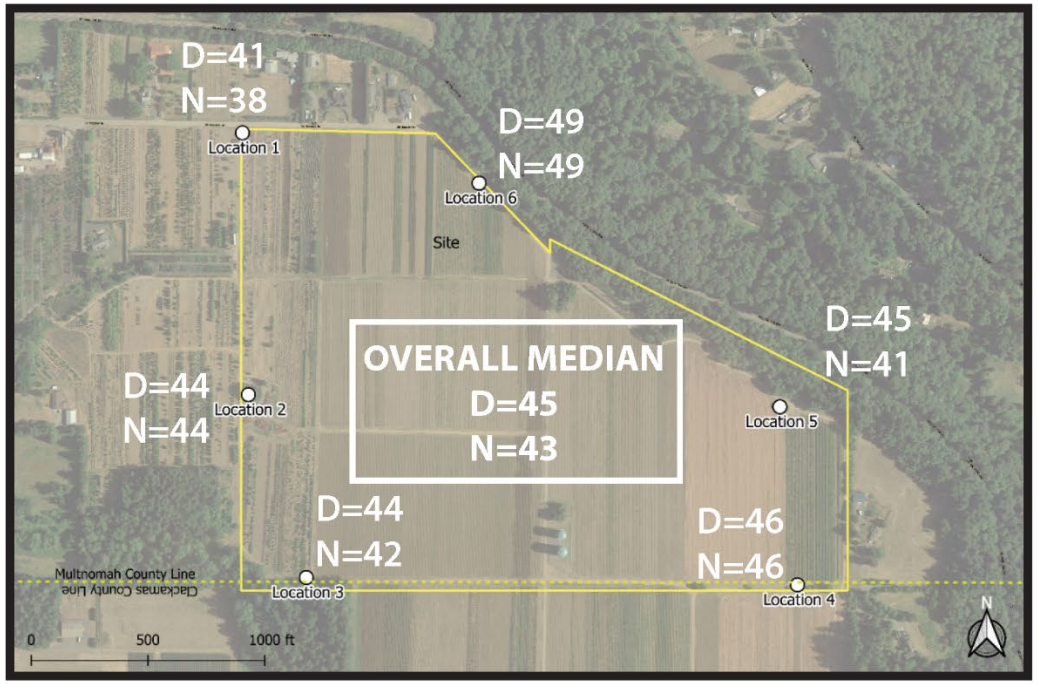
Clackamas County Code Limits - Measured at 3 feet from windows and doors of buildings with overnight accommodations.

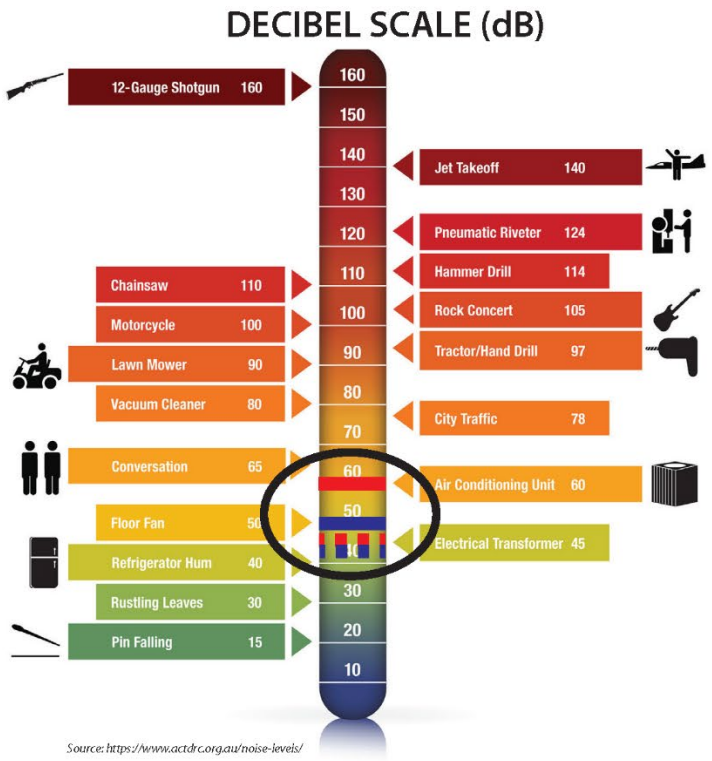
Exemptions: Emergency work or equipment, industrial sounds during normal operations, warning devices.



Design Concepts: Sound

Existing Conditions Near the Site





D=DAYTIME (7AM-10PM), N=NIGHTIME (10PM-7AM)
All numbers are median decibel readings, April, 2019

DIFFERENCE BETWEEN EXISTING AND CODE LIMITS:
DAYTIME = 15 dB
NIGHTIME = 7 dB

- EXISTING DAY (45 dB)
- CODE LIMIT DAY (60 dB)
- EXISTING NIGHT (43 dB)
- CODE LIMIT NIGHT (50 dB)

Design Concepts: Sound

Potential Strategies

During Construction:

- Limiting deliveries to daytime hours
- Optimize truck traffic
- Temporary noise walls or berms
- Alternatives to backup alarms (flaggers)


Noise Walls


Backup Flaggers

During Operation:

- Upgraded exterior doors and seals
- Defined daytime work hours
- Enclosed equipment
- Site berms or sound walls
- Upgraded mufflers
- Electric vehicles and carts

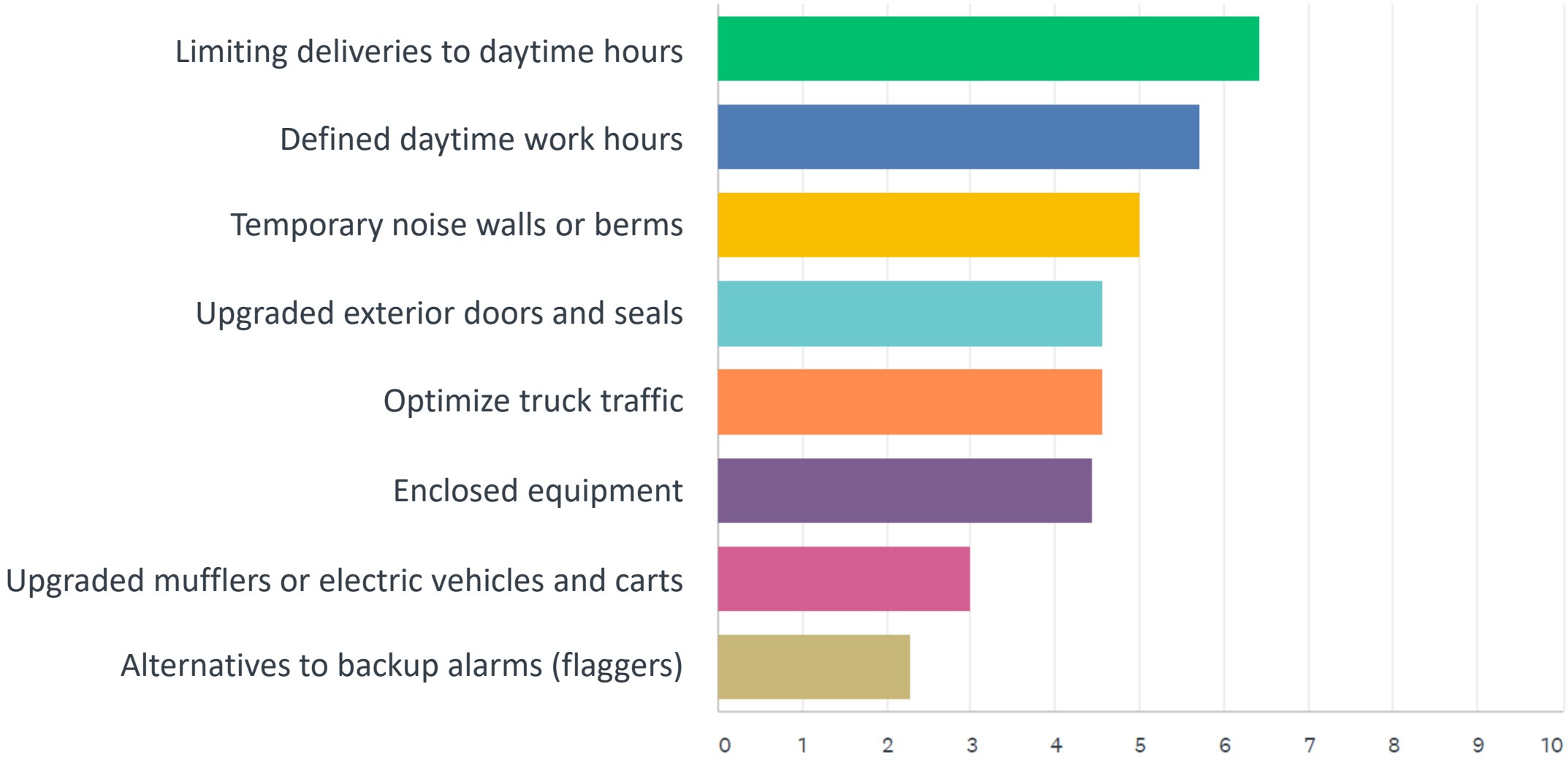

Exhaust Baffles


Equipment Enclosures


Vegetated Berms

Rank potential sound mitigation strategies

Answered: 7 Skipped: 0



Site Advisor comments (survey excerpts)

- All of the above items listed should be implemented. The **priority is based on construction period** rather than operational period priority.
- Make **as quiet as possible**
- Permanent vegetated **berms and landscaping**
- **Build low** to mitigate light and noise and contain any leaks from system

Would you like **more detail or clarity** on any of the information we just shared?

Discussion format feedback?

What went **well**?

What could have gone **better**?

What **suggestions** do you have for next time?

What’s next?

Email Information and Online Feedback (1 of 2):

Site access alternatives information

Email Information and Online Feedback (2 of 2):

Site buffers and edges design concepts

Conference Call Discussion:

Thursday May 14 6-7 pm

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Our water: Safe and abundant for generations to come

Thank you!

PORTLAND WATER BUREAU
FROM FOREST TO FAUCET

CITY OF PORTLAND, OREGON 1851