

**MATERIAL SOURCE MANAGEMENT PLAN
Oregon Dept. of Transportation (ODOT) REGION 4**

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Material Source Management Plan for Region 4

Introduction

Purpose Statement: This document provides strategic guidelines for managing material sources and disposal sites in Region 4. Materials (hard rock, gravel, cinder, borrow) are the mainstay of the ODOT infrastructure and as such ODOT is a major consumer of materials statewide. ODOT Region 4 recognizes the beneficial value of material sources and disposal sites to its program of construction and maintenance of the transportation systems throughout the region. Material sources are non-renewable resources and the plan presented below is intended to provide guidance for their wisest use allowing for their maximum utilization through sound management.

Material Source Program Goal: To have fully permitted, cost effective and efficient ODOT owned and controlled material sources located strategically throughout the Region, available for use by Maintenance and Construction.

Material Use Philosophy: To offer cost effective material sources for both maintenance and construction projects with a focus on rural areas and areas with limited available resources. Sources should be offered for ODOT projects when appropriate and when it will benefit the tax-paying public. Factors to consider when determining if it is appropriate to offer a site would be availability of the needed resources from various sites, the ownership distribution of existing sites, and the location of the available material sources relative to the areas of need. ODOT Region 4 should strive to accomplish the stated purpose by implementing an aggressive, proactive management approach for its network of material sources. This proactive approach should be accomplished by actively managing the database, completing site evaluations, protecting key sites, obtaining permits for as many sites as needed, disposing of surplus properties, acquiring additional property around existing sites and/or acquiring new resource sites as needed.

Material Source Management

Region 4 Material Source Management Team (R4MSMT):

The R4MSMT is comprised of the following positions:

- Region Geo/Bridge/Environmental Manager (Team Lead)
- Region Tech Center Manager
- Region Planning Manager
- Region District Managers
- Region Environmental Coordinators
- A Region Project Leader
- A Region Construction Project Manager
- Region Right of Way Manager

- Statewide Material Source Program Leads

The Region 4 Material Source Management Team is charged with implementation of the Region 4 Material Source Management Plan. Additionally, R4MSMT is responsible for addressing the following list of items necessary to insure that the Material Source Program in Region 4 continues to be viable:

- Funding.
- Identification and fulfillment of needs.
- Matching resources to needs.
- Managing ongoing resource demands.
- Developing and implementing prioritization strategies.
- Determining and assigning roles and responsibilities.
- Developing and implementing communication plans.
- Addressing emerging issues regarding Region 4's material sources and disposal sites.

The primary responsibility for management and development of material sources in the region resides with the **Geology Unit** with input and guidance from customers, primarily the ODOT Maintenance and Construction programs and the R4MSMT. Oversight of the statewide material source program as a whole is the duty of the Statewide Aggregate Resource Coordinator. Region Geology staff are responsible for material source management for the resource sites in Region 4, which includes source permitting, long and short term concepts for development and reclamation and prioritization of source usage both for removal and disposal.

With input and guidance from their customers and the R4MSMT, the Region Geology staff in coordination with the Statewide Aggregate Resource Coordinator will manage material sources by making site specific decisions and or recommendations under the guidance of developed Statewide Program Goals related to permitting, management, development and reclamation.

Coordinated Effort: During those periods of time in between entries for construction projects, day to day management of material source properties will continue to reside with the local and District maintenance managers. During these periods, Maintenance personnel will continue to be the first point of contact for complaints and liability concerns. With advice and assistance from the Region Geology staff, Maintenance will continue to be responsible for addressing dumping issues, hazmat cleanup and access concerns unrelated to construction contract operations. Maintenance will communicate in advance with the Region Geology staff regarding maintenance activities in the material sites to insure permitting requirements are met and development and reclamation strategies and goals are achieved.

Aggregate Source Information System (ASIS): Key to managing a network of material sources is knowledge of where the sources are, what type of material is available, how much material is available, what the quality of the material is, permit

status, and use restrictions. The ASIS database is the tool which the Statewide Aggregate Coordinator and the Region 4 Geology staff use to document this information. It is an important tool for managing the ODOT material source network which includes ODOT owned and controlled sources as well as private and commercial sources. It is the goal of the Region Geology staff to input new information and to update existing information to keep it current and accurate. The ASIS database is a valuable source of information for others within ODOT. Information from this database is frequently used for presentations and responses to inquiries from others outside of ODOT.

Tracking of Material Usage: The material source business by its nature is a consumptive activity. Resource sites have limitations on the volume of material available within their property boundaries. As sites are utilized for their intended purpose, the resource is depleted. By tracking material usage from the various ODOT sites, ODOT is able to effectively predict depletion rates for these sites. In addition, by having an accurate account of material usage from these sites ODOT can effectively document ODOT's need for materials in the various geographic areas of the Region. With additional information obtained in the tracking process, such as frequency of use, seasonal use, and volume of use ODOT will be in a better position to effectively plan for future needs.

Tools for Material Source/Disposal Site Management and Development: Numerous tools have been developed to assist in material source management and development. These tools are available via the ODOT Internet (Divisions/Highway/Sections & Programs/Geo-Environmental Services/Geology-Geotechnical/Material Sources/Forms & Resources). These tools should be used for material source management and development in order to insure that material source work is complete and nothing omitted and for consistency from region to region.

Funding, Scheduling, & Permitting Philosophy

Identification of viable sites, their acquisition and subsequent development, and permitting of sites is an expensive and time consuming endeavor. Our philosophy is to fund material source development and permits through projects in the STIP or other established programs. Region Geology representatives should work with Project Leaders to identify a project's material source needs early in the project development process and provide a budget that covers right of way work as well as the development and permitting work needed for these sites. As a result of the continually changing environment of land use regulations and their impact on material source permitting, it is ODOT's standard philosophy to obtain and maintain any required permits as long as the site is still viable. Commonly, Maintenance budgets are adequate to fund the yearly permitting costs and the day to day expenses associated with site security, hazmat and garbage cleanups, as well as access road maintenance and control, but are not adequate to cover the cost of site development. If a site is to be solely used by Maintenance, as is common with cinder sites, funds will need to come from Maintenance which requires planning and budgeting in advance of the scheduled use.

State Permit: DOGAMI permits should be obtained and maintained for ODOT owned sites. Permits should be obtained for all key sites as soon as practical and for other ODOT owned sites on an as-needed basis. In either case, once a site is permitted, the permits should be renewed annually for as long as the site remains viable. On Federal sites and sites owned by others, each site will need to be evaluated individually. Permitting strategies for federally owned sites will be determined for each site based on the frequency of ODOT use, method of ODOT control, and availability of use of the site by others. The Statewide Aggregate Resource Coordinator is available to provide recommendations regarding permitting strategies to Region Geology staff and Maintenance.

County Permit: For any ODOT owned sites requiring a county land use permit, ODOT should attempt to obtain permits which will remain in force for the life of the site or for as long as possible. Permits should be sought that will allow for any and all uses that could be required in the site. For example, for all aggregate sites, county permits, should address extraction, crushing, screening, batching and stockpiling as well as other uses such as storage of and processing of imported materials. As the opportunity occurs during the update of county land use ordinances, ODOT should work with counties to identify and protect new and existing sites through appropriate zoning and notification procedures for the site and surrounding buffer areas. County permitting of material sites is currently in flux (Goal 5, etc.) and the ODOT strategy will have to remain flexible to respond to changes in this process.

Federal Permits: For Bureau of Land Management (BLM) sites ODOT should attempt to obtain Deeds of Right of Way for all sites which have a history of ODOT use rather than utilizing these sites via Free Use Permits. Nevertheless, there are certain circumstances where Free Use Permits may be the only option available for securing control of BLM material sources. For United State Forest Service (USFS) sites ODOT should attempt to obtain long term permits for up to 10 years duration.

Material Source Property Management Philosophy

Maintain Ownership: The general philosophy regarding ownership of material source properties is to maintain ownership of lands acquired for material source purposes if they have any value to ODOT. The value to ODOT of a material source property may extend beyond the sites original intended purpose to uses such as staging areas, disposal sites, stockpile sites, wetland sites and even building sites. The Significant Site Evaluation Form has been developed to facilitate consistent evaluations across the state of material source properties. The scoring system was designed to provide a reasonable recommendation for how the specific site should be managed.

Surplus Strategy: Many ODOT owned properties that were originally acquired for the purpose of material sources have undergone changes over time. Some have had their resources depleted. Others may have had conflicting uses, such as residential areas, developed nearby. Consequently, each and every ODOT owned or controlled material source needs to be evaluated by a Region Geology Resource representative, and those

properties found to be currently of little or no value as a material source or disposal site should be considered for surplus. ODOT has developed the Significant Site Evaluation Form to provide for consistent evaluation of material sources. This form is available on the ODOT Internet (Divisions/Highway/Sections & Programs/Geo-Environmental Services/Geology-Geotechnical/Material Sources/Forms & Resources). One of the site management options provided when completing this form is to recommend a property for surplus. If, after evaluation, a specific site scores low enough, and it has been verified that the property is owned in fee simple by the state, the Region Geology representative performing the evaluation should submit the site to ODOT Property Management for circulation in the Surplus Property Process for potential sale pursuant to Section 9 of the Right of Way Manual. The Right of Way Manual is available on the ODOT Technical Services Section webpage under the “Sections - Right of Way” link. Sale of these properties generates additional revenue for the state, returns land to the property tax roles, and is required by law. An expedited surplus property process may need to be developed to address specific sites that are identified as surplus and have a continuous and repeated history of dumping or present some other form of high liability. If the property is not owned in fee by the State of Oregon, but owned by the Forest Service or the Bureau of Land Management and it has been determined that the property is of no further use to ODOT, the Geology Resource representative should notify the Region Right of Way/Survey Manager that ODOT’s interest in the property needs to be relinquished back to the granting agency. The notice to the Right of Way/Survey Manager should be in writing and include maps, legal descriptions, and any other documentation that would be helpful in the relinquishment of ODOT’s interest in the property.

Acquire New Sites in Areas of Need: Another integral element in the efficient long term management of the network of ODOT owned material sites is replenishment of depleted material resources. This occurs through acquisition of new sites, purchasing or leasing existing permitted sites under private ownership, or adding acreage to existing sites via some agreement or other process. Gaining control over additional lands adjacent to existing sites or over new sites in areas of need will allow ODOT to effectively plan for and complete both maintenance and construction projects in an efficient and cost effective manner. As a rule of thumb, if ODOT is buying additional land adjacent to an existing site, the recommendation would be to acquire an additional 20 acres minimum. If buying a totally new site, ODOT should acquire 40 acres minimum, caveat being that local land use regulation may require ODOT to acquire a larger parcel (80 or 120 acres) due to minimum parcel sizes in various county’s zoning regulations.

Gain Control of Additional Material Sites: This option is available for use on private or federal lands. On private lands, an option to purchasing a material source is obtaining a long-term exclusive lease. On federal lands owned by the USFS the preferred option is to obtain long-term permits. USFS regulations limit the duration of long term permits to a maximum of 10 years. Staff assigned to acquire permits for use of material sources on USFS owned lands should become familiar with the ODOT/USFS Memorandum of Understanding (MOU). This MOU provides a framework for cooperation and a common understanding of the guidelines and administrative processes governing ODOT’s use of

material sources on lands administered by the Forest Service in the State of Oregon. This document is available on the ODOT Internet (Divisions/Highway/Sections & Programs/Geo-Environmental Services/Geology-Geotechnical/Material Sources/Forms & Resources). On federal lands owned by the BLM the preferred option is to obtain Deeds of Right of Way. Deeds of Right of Way have no expiration date and, once obtained, are ODOT's to use until the resource is depleted or until ODOT determines that there is no further need for the site and formally relinquishes it back to the BLM. Staff assigned to acquire Deeds of Right of Way on BLM owned lands should become familiar with the federal land transfer process. A checklist outlining this process is available on the ODOT Internet (Divisions/Highway/Sections & Programs/Geo-Environmental Services/Geology-Geotechnical/Material Sources/Forms & Resources). As previously mentioned, there will be circumstances where a Deed of Right of Way will not be an option and a Free Use Permit may be the only course of action available for securing control of a BLM material source.

Management Philosophy Based on Material Types

Hard Rock: Although hard rock quarries are generally more expensive to operate in than alluvial gravel deposits due to need for blasting, they are the preferred option for use to fulfill ODOT's aggregate needs. The quality of material in quarries is less variable when compared to gravel deposits. The rock can be reduced and sized to meet nearly any ODOT project need. Provided a thorough investigation has been completed and the development plan has been designed properly, a quarry site should lead to fewer contract related issues. When evaluating these sites for paving aggregate purposes, qualification testing should be performed by the ODOT Central Testing Laboratory in Salem.

Gravel: In general, alluvial deposited gravel sites are less desirable for ODOT. Liability when utilizing these sites can be very high regardless of the depositional origin. Gravel deposits, in general, are easier to operate in than quarries, but have a much higher percentage of scalping and reject material, commonly have more problems with undesirable coatings on the rock, are more difficult to clean, and frequently are found in more sensitive environmental areas such as rivers and wetlands.

Flood Plain Gravel: Flood plain gravel is the least desirable for ODOT due to the environment in which they are deposited. In the State of Oregon today, it is difficult to find a flowing body of water that doesn't have some T&E species or sensitive habitat associated with it. Surface mining is inherently invasive and disturbing gravel deposits near flowing streams where water levels fluctuate and overtop their banks during floods leads to concerns over sedimentation, channel changes, and other off site impacts. Generally speaking, the cost of permitting a site near a flowing water body is much more expensive as well. In the management of these sites ODOT will look at each very carefully and in certain cases look to dispose of these properties. Most of the ODOT owned properties that fall into this material type category are small in acreage. Some of these properties amount to nothing more than a point bar of gravel without any upland property associated with them. The cost of permitting these small sites will, in most cases, be prohibitive. This is not meant to indicate that ODOT is not interested in

utilizing flood plain gravel. Gravel deposits in many areas are the most viable option and potentially the only option for material. Under the right set of circumstances, ODOT will continue to utilize this type of material, but as a general rule, ODOT's mining of flood plain gravel will be limited and only under very specific circumstances. If looking at these sites for aggregate purposes, qualification testing should be performed.

Terrace Gravel: Terrace gravel deposits generally have less environmental concerns and issues associated with them in comparison to flood plain gravel, but still commonly exhibit certain characteristics that make these deposits less desirable. One very important environmental concern commonly associated with these deposits is archeological resources. Many of these types of deposits were emplaced around large pluvial lakes in areas frequented by Native Americans. In addition overburden depths can be highly variable across these sites and can result in the need to handle much more unusable material than anticipated if a thorough investigation has not been conducted. These types of gravel deposits also exhibit a high degree of variability. Many of these deposits will exhibit significant changes in gradation throughout and will contain lenses of clay and silt that can vary in thickness from inches to feet. Often times these gravel deposits will have coatings on the rock that will lead to cleanliness issues and stripping problems when trying to utilize the material for paving aggregate. These deposits commonly require washing to achieve the necessary cleanliness and have a very high percentage of reject or scalped material, leading to the requirement to handle and process much larger volumes of material than the project demands. These sites can be and have been very useful to produce asphalt aggregate, base rock and embankment (borrow) material as well as Mechanically Stabilized Earth (MSE) wall backfill and other uses. When looking at these types of sites, the overall gradation of the material available is important in evaluating potential uses. Sites with finer grained deposits may be less useful as a result of the fractured face requirements for many of the crushed aggregate products. An additional concern related to these sites is the highly variable pH and resistivity test results obtained from these materials. Consequently, pH and resistivity tests need to be performed by the ODOT Central Laboratory in advance of designating these sites for use in MSE wall construction or metal pipe bedding or backfill. Sieve analysis is also very helpful in determining potential uses of these materials. If looking at these sites for aggregate purposes, qualification testing should be performed.

Cinder: The primary use of volcanic cinders is for producing sanding aggregate but cinders are occasionally used for constructing embankments and light weight fills. Cinder sites generally provide the most cost effective sites from which to produce sanding aggregate. In some areas of the state quality sanding sites are plentiful but in other areas these types of sites do not exist. In areas devoid of cinder sites, sanding material is generally produced from hard rock or gravel sites. Cinder sites are primarily used by Maintenance and infrequently for construction purposes. Sieve analysis of the native material can be very helpful in determining operational issues in these sites.

Borrow: Borrow is the general term for any type of "material lying outside of planned or required roadbed excavation used to complete project earthwork". On many projects the source for embankment material will simply be the cut sections, but in cases where

there is insufficient material within cut sections or where there are not any cut sections associated with the project an off site source of common material is needed. ODOT has many sites containing common material which can be used by both Maintenance and Construction.

Disposal: Most ODOT owned or controlled material sites may be considered for disposal of clean material such as excess excavation from projects, slide debris and ditch cleaning either on a permanent or temporary basis. If this effort is managed appropriately, it can be beneficial to long term source development and reclamation as well as result in overall reduction in cost to construction projects or Maintenance. The key is to properly manage this activity to make sure that it is consistent with the long term development strategy for the source.

Site Development Philosophy

Long Term Development: When looking at ODOT owned properties or sources controlled by ODOT under a long term agreement of any sort, development of the site for an individual project should only proceed after a long term development strategy has been conceived. Permits should be obtained for the entire site, not a portion of the site. Environmental evaluation should also cover the entire site and clearances and restrictions identified. If property boundaries are uncertain, survey work to determine and monument the property boundaries for the entire site should be performed. Topographic survey work should cover a large enough area to clearly show the development area for the current project including all storage areas and identified no work areas. Enough topographic detail outside the immediate project limits needs to be available to assure easy recognition of topographic features both inside the development and outside of the immediate development area. Additional topographic detail will also be necessary to confirm the long term development strategy i.e. benching, slopes, overburden storage, buffer areas, visual screens, stockpile locations and concurrent reclamation areas, if any are planned. Investigation of the site via test pits, core holes, air track holes or auger holes should also be planned for both the immediate operation and expansive enough to confirm the long term development strategy. The location of all exploratory holes and pits should be accurately plotted on the topographic map of the site otherwise the value of the exploratory effort and information obtained will be diminished.

Short Term Development: Project specific development designs or entries should be completed in such a manner so that they do not impede future development. For example when designating stockpile locations or allowing stockpiling make sure that the material is not placed in areas that will interfere with future development entries requiring it to be rehandled. When planning slopes, overburden or spoils (reject fines, scalplings, oversize, stumps) storage, or other long term site development features, future operations need to be addressed to assure that expensive rework is minimized.

Activities, Clearances, and Concerns

Boundary Survey: All ODOT sites being considered for use should have a filed boundary/property survey completed in advance of further use to assure that the proposed operations are within the boundaries of the ODOT owned property. Sites proposed for use, belonging to others, should also have a boundary survey or confirmation of a property boundary to ensure that ODOT operations will not trespass onto an adjacent landowner's property. Property lines or boundaries should be clearly and permanently marked.

Topographic Survey: All material sites proposed for utilization by ODOT should have current topographic surveys completed in a format that is useable by ODOT. This assures the ability to design an accurate development plan.

Project Specific Survey: Once a development plan has been prepared, the boundaries, storage areas, no work areas and other critical features should be staked in the field in advance of any on site work. This can be completed either by ODOT forces or by contract surveyors. Changes to these locations need to be evaluated against the long term site development strategy.

Environmental Clearances: All material sites and disposal sites proposed for utilization by ODOT should have federal and state environmental clearances; **no exceptions.** In cases where subsurface investigations will be completed, partial or complete clearances will need to be obtained in advance of the investigation work. This may mean two phases of environmental clearance work, one covering the investigation phase and the second for the actual development of the site. Source investigations and development will conform to the requirements of Directive ENV 01-01, regarding the Migratory Bird Treaty Act. This directive is available on the ODOT Office of Project Delivery webpage under the "Operational Notices" link.

Noxious Weeds: Concerns related to the potential spread of noxious weeds has led to the development of special provisions requiring the cleaning of equipment prior to entering a material source site. In material source sites where noxious weeds already exist, an effective eradication program should be developed and implemented to eliminate the weed population. In ODOT owned sites this would require the recognition of the existence of the weed population and the development of a plan with the ODOT Vegetation Management Program. If the weed population is identified on a federally owned, ODOT controlled material source, development of a plan will require involvement of the federal agency in addition to ODOT personnel. Involvement of federal personnel will help to assure compliance with federal requirements related to application of herbicides. In some cases herbicides will not be allowed and hand pulling of weeds will be necessary.

Site Investigation: Accurate site depiction of the geology of ODOT sites is necessary and most sites will require some level of investigation. The level of investigation required will depend on the site and the history of the site. Common methods of investigations related to material sites are core holes, air track holes, auger holes, test pits and simple field reconnaissance. When investigating a site, the investigation should be

comprehensive enough to cover the initial entry and to confirm the long term development concept. Again, the locations of all exploratory holes and pits should be accurately plotted on the topographic map of the site.

Pollution Control: Hazardous materials concerns related to fuels, hydraulic fluids, oils and by products of the processing efforts including excess fresh A/C and PCC are always present in active material sources. These materials need to be contained, handled, and disposed of appropriately. ODOT controlled material sites are not solid waste landfills, used oil dumps or hazardous material waste disposal areas and ODOT is unnecessarily exposed to liability as well as cleanup requirements and cost when these activities are allowed. Contractor crews as well as Maintenance and other users must be required to handle these materials in an appropriate and legal fashion. If dumping or burial is allowed, the sites must be registered with DEQ as a solid waste landfill and all proper paperwork and monitoring must be completed. Pavement grindings are not classified as hazardous materials or solid waste and may be stockpiled in material sites as long as conflicts with the future development are kept in mind.

Fugitive Dust: Section 00235 “boilerplate” Special Provisions have been developed to address a number of material source operational issues including dust generated from hauling across material source/disposal site access roads, crushing operations, and disposal operations. These Special Provisions are available on the ODOT Internet (Divisions/Highway/Sections & Programs/Geo-Environmental Services/Geology-Geotechnical/Material Sources) ODOT Internet (Divisions/Highway/Sections & Programs/Geo-Environmental Services/Geology-Geotechnical/Material Sources/Forms & Resources). Nevertheless, there are circumstances, such as material source operations in proximity to sensitive streams and vegetation, where additional countermeasures will need to be specified in order to effectively control dust emissions.

Clean Water Act Compliance: ODOT material sites are not exempt from clean water regulations and permitting requirements. ODOT, in developing sites, needs to address the issue of storm water and processing waste water with the overall goal, if achievable, to not discharge any water off site which would lead to the requirement of having a National Pollutant Discharge Elimination System (NPDES) permit. This can be achieved via berms, sloping, cut off trenching and other methods, all of which need to be designed to complement the long term development and reclamation strategy.

Oversize: Rip Rap or oversize, material too large to fit into a primary crusher, can be a valuable commodity to ODOT. The volume of need for this material varies greatly across the State as does the availability. If managed improperly oversize can become a major problem in many sites. It is crucial to the long term management of a site that the needs of the area for oversize materials are understood. In general the ODOT approach to oversize or Rip Rap is that unless there is a specific or identified need for this type of material it should not be allowed to remain in the ODOT sites. If oversize exists within the quarry upon entry and it is decided that no more is needed for maintenance or others, it should be addressed in the specifications to reduce it as a part of the contract. Oversize material should be managed with each operation. If it is not needed on the project, by

Maintenance, or others, the contractor responsible for the production or unearthing of the material should be required to reduce it to a smaller size (generally 12 inch maximum diameter) if not crushed and utilized in the operation.

Garbage: Burial, Removal, And Burning: ODOT sites are not solid waste disposal sites. The operation of landfills and the liability associated with this practice is outside the scope of any of the ODOT business lines. The approved operating specifications, which should be followed in all circumstances, clearly address how solid waste material should be handled or disposed of. The summary statement of what is contained within the specifications is that nothing should be buried or left within an ODOT material site. Burnable material should be burned if allowed. If it cannot be burned, it should be removed. Non-burnable material should be removed. By-products of the batching process should be considered non-burnable solid waste and removed. This is not limited to, but includes bag house fines and fresh asphalt waste. The one exception to this rule is related to vegetation generated on site. Grass, shrubs and some larger woody vegetation will be addressed below. Between operations, ODOT sites without restricted access frequently become target ranges and dump sites for common garbage as well as hazardous materials. The responsibility for cleanup of this material remains the responsibility of Maintenance. If a site is proposed for use under a contract, cleanup of this material should be identified in the contract plans and special provisions and addressed during the contract. If a site has a history of this type of activity, restricting access via fencing and locked gates should be considered.

Testing and Sampling: Sampling and testing of material from a proposed aggregate site is a critical element in the development of a site. Offering a prospective source for an ODOT contract, no matter who the owner is, without having current qualifying samples is an unacceptable and risky practice. By offering a prospective source for an ODOT project there is an implied assurance of material quantity and quality. If a source is offered that has not been sampled and qualified and a quality problem arises, ODOT will generally be required to accept the liability. What this means is that it will be difficult in a claim situation to assign any of the responsibility related to quality issues to the Contractor because there would be no way to prove that quality material could have been produced in the first place.

Blasting: Blasting is a major concern in all ODOT material sources where blasting is necessary. An improper blast can result in excess oversize material, unstable slopes and possibly poor utilization or wasting of the resource. Due to the potential for problems related to blasting, a blast plan should always be required. The blast plan should be reviewed by ODOT in advance of the blast, and coupled with an on site inspection of the blast site prior to the blast. The on site inspection is made to assure that the blast is laid out in accordance to the plan. Video taping of the actual blast or blasts are key to assuring that there is a record of what has taken place in a source. The proposed blast plan, any subsequent alterations to this plan, inspection records and the video tape(s) may be important if a claim arises related to a blast in the site. In addition, this information will be useful when the site is used in the future.

Timber: In addition to the aggregate material resource, ODOT sites may also have a merchantable timber resource. What to do with timber resources removed from an ODOT site during development is commonly an issue. Two possible courses of actions are explained in the following two paragraphs. Prior to selling or conveying rights to timber or any other resource contained within an ODOT controlled material source or disposal site, staff assigned to their development and management must be sure to thoroughly review the property deed, permit, or agreement to make sure that ODOT has the rights to that resource.

Timber Sales: If the volume of merchantable timber is large, the recommended process is to work with the ODOT Forester to let a separate timber sale in advance of any mining operations. Many times it is advisable to remove all timber from a site at one time rather than a few trees with every entry. This results in maximum return for the taxpayers. If the volume of merchantable timber is in question, again it would be advisable to consult with the ODOT Forester to determine the best approach for removing the timber.

Timber to Contractors: After consultation with the Forester, if it is determined that the timber volumes on the site or the conditions of the site do not warrant a timber sale contract, timber can be made property of the Contractor. The concept is that if there is any value in the trees over and above the cost of removal and transportation, it will be reflected in lower bid prices for the material. The decision to choose this option should be based on the site specific development strategy, site conditions and discussion with the Forester.

Slash Disposal: Disposition of slash generated on-site can be handled in several ways and should be addressed in the operational specifications. A contractor can be directed to remove the material from the site and dispose of it appropriately. Another option is to have it piled on-site and burned. Slash material can be chipped on-site and used in the reclamation of various areas of the site. A fourth option is to stockpile it on-site in some strategic location and utilize it as part of the reclamation plan. In some situations root wads and other woody debris might be used for biostabilization work that may be required on the project or stockpiled for that future purpose. Piles of stumps and small trees can provide for wildlife habitat and, in some situations, is highly advisable. A factor to consider is material volume. Stumps and small trees stockpiled for wildlife habitat enhancements do not need to be large. Multiple small piles scattered around the site might be a better plan than a single large pile. A combination of wildlife piles with burning or removal of excess material is often the best solution. Once again, the locations of these features need to support the long term development and reclamation strategy.

Stockpiling of Aggregate Products on ODOT Property: In many ODOT operations there will be excess aggregate material left after the operation. These include crushed aggregate products, loose pit run material, as well as waste products from the crushing operations (scalpings and rejects). The concerns related to this left over material are placement completely on ODOT controlled property, that different piles be kept separate

and accessible for subsequent use by Maintenance and that the placement of these materials will not interfere with future operations.

Stockpiling of Crushing Waste Products: Scalping and crusher reject are common byproducts of the crushing operations. The volume of this type of material will vary depending on the source, the type of product being crushed, as well as the Contractor performing the work. If this material is generated and not utilized on the project it can be of some value for Maintenance or for reclamation purposes. A key element in the development strategy is the disposition of this material. The standard specifications for material source work requires that this material be stockpiled in separate and accessible piles as shown on the plans, not spread across the floor of the source or placed at the whim of the Contractor. Keep in mind that these are aggregate products for which the Contractor has been paid, either directly or indirectly, and this material is the property of ODOT and should not be wasted. This aspect of an operation needs to be controlled to assure best utilization of the resource at the most economical overall cost.

Excess Materials from Construction Projects: Section 00195.80 of the Standard Specifications for Construction addresses how ODOT should handle excess materials including aggregate materials. In addition, ODOT Procedure ACC 03-01 addresses how the State is to account for the value of excess material. The contradiction in this process comes from the steps outlined in the Construction Manual, where it states if ODOT has no need for the material but the material has value it must be considered for surplus. This process is under review with the intent of making a change to the policy and procedure to prevent possible conflicts especially with regard to aggregate materials. With respect to aggregate, it needs to be clear that, although not desirable, if the material comes from an ODOT owned site, it can legally be sold via the surplus process. In situations where ODOT is operating in a federally owned site controlled by ODOT through a permit or right of way agreement, selling any excess material would not be legal and would put ODOT in violation of the permit or right of way agreement. If ODOT were to sell material from a federal site under its control, ODOT would lose its access to the site. As a standard of practice, excess material produced in material sources in Region 4 should never be declared surplus or sold. Excess aggregate material should either be transferred to Maintenance or retained for future construction projects.

Stockpiling of Grindings: For many current ODOT paving contracts, pavement grindings are a common by product. In many cases ODOT has identified a need for this material for repair of other highway sections. During project development an ODOT material source may be identified as the stockpile location for this material. Ideally, this type of material should not be stockpiled in ODOT sources. It is preferable to utilize sites, dedicated for stockpiling purposes. When this is not a practical option, ODOT material sites may need to be used. Grindings stockpiles often times remain for several years prior to them being used up. Once again, the designated location for stockpiling of pavement grindings should be chosen so as not to interfere with future mining operations.

Disposal of Construction and Structure Debris: Most ODOT owned or controlled material sites may be considered for disposal of clean material such as excess excavation

from projects, slide debris and ditch cleaning either on a permanent or temporary basis. Clean fill is rock, soil, concrete with or without rebar, brick, building block, tile, or asphalt paving (weathered and consolidated with no free oil), that does not contain contaminants that could adversely impact waters of the state or public health. Wood is not considered clean fill. These common types of construction debris can be used for the purpose of reclamation, for example, incorporated into fill to flatten a final slope or used in an area that is exhausted and needs to be reclaimed. Clean fill can be stockpiled for six months under a temporary permit from the Oregon Department of Environmental Quality (DEQ) if it is planned to be removed and used for embankment or other type of fill somewhere else in the source or on the highway. If this effort is managed appropriately, it can be beneficial to long term source development and reclamation as well as result in overall reduction in cost to construction or maintenance projects. The key is to properly manage this activity to make sure that it is consistent with the long term development strategy for the source.

It needs to be clearly understood, that material which meets the definition of clean fill becomes solid waste when the material is simply discarded at a site, such as indefinitely stockpiled or placed in an area that is still active and will require re-handling of the material. At this point the clean fill stockpile or waste site becomes an un-permitted landfill, requiring a DEQ landfill permit, which may or may not be approved, and, if approved, carries with it the requirements for long term monitoring. ODOT should not allow material sites, disposal sites or stockpile sites to become solid waste disposal sites for any reason.

Development of Processing Areas: A frequent problem associated with many ODOT material sites is the lack of available room within the site for processing equipment set up and for stockpiling. This frequently stems from past operations which “high graded” the sites rather than developed them in a logical, staged manner, or simply from lack of room creating use. As a result, initial operations in a source may be more costly as ODOT implements the design and development concepts to reduce oversize, better utilize the available resource, level pit floors, construct stable benches and slopes, plan for reclamation and attempt to increase the available area for equipment and stockpiles. These sound management efforts will, over time, result in a more cost effective and efficient utilization of the resource.

Special Concerns: In some cases there will be site specific concerns that could lead to additional development requirements. These include but are not limited to control of noxious weeds, dust suppression, noise abatement, visual screening, fire restrictions, and seasonal restrictions due to wildlife.

Reclamation

Reclamation can be defined as sloping, redistribution of soil, and re-vegetation of a surface mine site in order to make the site safe, provide for slope and soil stability, enhance its aesthetic appearance, and provide for a future beneficial use of the mined land.

By state law material sites have variable requirements for reclamation. By the law of public perception, ODOT is held to higher standards than is required by state law.

Stripping Soils: Soil overburden is a key element in the reclamation of material source sites. One common issue related to soil stripping in material sites is inadequate or incomplete efforts. Soil overburden should be completely removed from the proposed excavation area as well as the areas for stockpiling and processing down to the top of rock or to a specified depth. The Contractor should be required to strip the entire area as shown in the plans and stockpile the soil in the storage areas designated on the plans, with special attention paid to the required buffer strips around these storage areas.

Long Term Reclamation: What this means is that every development plan should include some consideration for reclamation. Not all sites will have reclamation, i.e. re-grading or overburden salvage activities as part of a particular operation. Nevertheless a logical thought out process for development allowing for long term reclamation of the site in increments or in a single operation in the future will be a consideration. For example, the salvage and storage of overburden materials needs to be planned with adequate material being retained on site in designated locations that will allow for cost efficient redistribution and re-vegetation. In sites where adequate reclamation medium (soil) is not available, consideration should be given to using the site for disposal of ditch cleanings, slide debris, excess excavation materials from contracts, or other sources for future use in reclaiming the site. Re-vegetation schemes should be developed and implemented appropriately keeping time of year, moisture levels, slopes, and seed mixtures in mind. Sloping of the sites should also be considered during development. Working faces (slopes that will be mined again in the future) and final slopes (slopes that will no longer be mined) will receive different treatments with regard to reclamation. Reclamation blasting is another method that can be utilized in the reclamation of hard rock quarries. Whatever the reclamation procedures entail, they should comply with the plan submitted to DOGAMI. Use of reject material from the site should also be considered for use in reclamation. This will allow for beneficial use of on site material (reject fines, scalplings and oversize in some situations) which otherwise can become a storage and placement problem.

Short Term Reclamation: Overburden storage areas and disturbed areas with soil cover should be re-vegetated as soon as practical to prevent loss of the soil material and reduce erosion. Project specific slope design and stockpiling locations need to support the long term development plan. If a slope is finalized in conjunction with a particular operation, reclamation of that slope or areas should be included in the project specific design.

Slopes: Slopes are a major consideration in all source development. Final slope requirements by the Department of Geology and Mineral Industries is 1 1/2H:1V maximum. Slopes in gravel pits, cinder pits and most borrow sites can be developed steeper as working faces but should be reconstructed to 2H:1V or flatter for final slopes. The flatter slopes will provide for better long term stability and for higher quality

reclamation. The maximum slope requirements imposed by DOGAMI do not differentiate between quarries and other sources, but they may allow for steeper final slopes if steep slopes occur naturally in the area and the construction of steep slopes is approved in advance. In quarries, the stability of the back slopes as well as the height of the slopes is an important consideration in the design of the development plan. In quarries no working face should be designed steeper than 1/4H:1V in order to prevent overhanging faces. We commonly use 12 meter or 40 feet as a target maximum height. This will vary depending on the topography of the sites and at what stage the development of the site is in. In hard rock quarries a standard rule of thumb is to go with 30 foot wide benches, 40 foot high slopes between benches, and 1/4H:1V slopes, which will produce an overall 1H:1V slope (top of high wall to outermost toe).

Plantings: Plantings of trees and shrubs is not common in ODOT material sources especially on the arid east side of the Cascades Mountain Range. Plantings on the east side usually require regular irrigation for several growing seasons to become established. In most situations at ODOT owned or controlled material sources this is not a feasible or economical option. In certain circumstances, where either natural moisture levels will allow for plantings or where a natural water supply exists, such as a stream, pond or spring, it may be possible to utilize plantings of trees and shrubs as part of the reclamation plan. If conditions do exist that allow for the establishment of trees and shrubs, these plants can offer additional benefit beyond reclamation in that they can provide visual screening, noise buffering as well as aiding in control of fugitive dust. In areas where conditions exist that will allow for the establishments of this type of vegetation, it may be necessary to include fencing or some other form of protection for the plantings during the establishment period to protect them from both wildlife and domestic livestock.

Safety

Safety is a key concern that needs to be factored into the development and reclamation scheme for every ODOT material source. The key site specific safety elements are listed and addressed below.

Safety Berms: Axle high safety berms are a Mine Safety and Health Administration (MSHA) requirement for high walls and elevated roadways. The approved specifications call for safety berms in ODOT sites to be constructed a minimum of 1 meter (3 feet) high with side slopes of 2H:1V. The footprint of the safety berms need to be considered when identifying roadway widths or clear areas for overburden storage and working faces. The requirement for safety berms serves several purposes. They are, of course, required by MSHA, but in addition, when the operations are completed they help to reduce potential liability by leaving the site with these safety features in place.

Ingress and Egress: Another key element in the safety of ODOT sources is site entrance/exits and their construction. Related to entrance/exit construction, the main concerns are roadway width, safety berm construction and roadway grade. In quarry sites, access to benches should be designed to accommodate tracked vehicles, but prevent easy access to unauthorized rubber tired vehicles. Furthermore, entrance/exit closures should be considered after the operation is completed for the sake of public safety and liability. This is to address the concern of unauthorized vehicle trespass. Many sites are located in remote areas and become camp sites, staging areas for off road vehicle riders and others. Restricting access is intended to reduce the possibility of accidents and dumping, therefore reducing ODOT's liability. Construction of features to control unauthorized trespass including fences, gates and other forms of entrance/exit closures should be coordinated with Maintenance. If sites have a history or potential for dumping problems, ingress/egress control should be addressed during site development. For example, if fences and gates exist; provisions should be made for their maintenance or improvement. If there are no existing gates or fencing, the possibility of adding these features should be considered during site development.

Benches: Benches in quarry sites should be developed as working platforms. The minimum design standard for ODOT quarries should be 10 meters or 30 foot bench width. Narrower benches have been used in the past with mixed results. Often times in quarry development precision blasting is not used and outer edges of the benches are unstable and tend to break and fall off. With narrower bench designs, the potential for breakage often leads to unworkable benches for future operations. Using the wider design width allows for the inevitable degradation of the outer edge, provides room for placement of a safety berm and will provide a stable working platform for subsequent entries. If narrower benches are specified for some reason, it needs to be recognized that it is likely they will not be usable during future operations.

Long Term Strategy

As mentioned in many of the categories above, different sites offer different materials which can and will be used for different purposes. As also previously mentioned, many aspects of site development need to be taken into consideration beyond the specific project at hand. In the past, many Contractors utilizing ODOT material sources were, in a manner of speaking, allowed to operate however they wanted within the sites as long as the end product (the material needed for the project) was satisfactory. Even today, without quality plans and enforcement of the specifications, some Contractors will attempt to operate within the ODOT sites in a manner that may be more efficient for their operation but provides no consideration to future use of the site. For example, some Contractors prefer to leave oversize material rather than reduce it to a smaller size. Contractors may not be concerned with the effect of stockpile location on subsequent entries which can result in future operations needing to move large piles of material in order to continue development of the site. Contractors may choose to construct narrow benches in order to obtain needed material rather than start the development of a new face and they may attempt to bury debris in a site rather than dispose of it properly. ODOT needs to recognize that material sites are needed for the long term as well as the short term. Development and operations within the sites needs to be planned and carried out in a fashion that allows for the current project to be completed in a cost effective manner while leaving the site in a condition that will not require unnecessary expenditures on future projects. Effective ongoing inspection of the operation while it is in progress at the site is key to insuring that it is developed properly in conformance with plans and specifications. Another key element in assuring that ODOT sites are developed properly according to the plans and specifications is the use of on-site pre and post work meetings for each operation. The pre-work meetings occur at the site prior to the Contractor commencing work and allow the Region Geology staff and the ODOT Construction or Maintenance personnel to discuss the various aspects of development of the site with the Contractors. The post-work meeting also occurs at the site at the completion of operations but prior to the Contractor's removal of construction equipment and allows the same people to get together and confirm that the site has been developed and reclaimed properly. If it is determined that the site has not been developed and/or reclaimed as per plan and specifications, having equipment on site allows for corrective action to be made without equipment.

Construction: The strategy related to use and development of material sites for use in construction places a focus on strategic development. This means logical development of the excavation areas, storage of overburden, development of stockpile and processing areas, restrictions on stockpile placement, long term permitting, full environmental clearances and addressing issues related to timber, slash and oversize.

Maintenance: The approach for sites primarily used by Maintenance is very similar to that for sites used by Construction. The same long term logical development of the excavation areas, storage of overburden, development of stockpile and processing areas, restrictions on stockpile placement, long term permitting, full environmental clearances and addressing issues related to timber, slash and oversize is necessary. The main difference is that ODOT Maintenance commonly will be performing the work themselves rather than letting a contract for performance of the work. This may lead to a lower level

of involvement and oversight required by the Region Geology staff prior to, during and after the operations. A Maintenance contract for material production in an ODOT source is no different than a STIP contract and will require the same level of effort and scrutiny by the Region Geology staff and other inspection staff.

Emergencies: The concern in this arena is to recognize areas of need as well as recognition of the type and size of materials normally called for in the area. For example, in some areas stone embankment will be the common material type and size needed for emergencies. For other areas large rip rap will be needed in emergency situations. In other areas the need will be for disposal, versus material removal. What must happen in advance of the anticipated emergency is planning and preparation. Sites should be environmentally cleared and permitted in advance. In some cases materials should be produced in advance or at least development schemes prepared and necessary permits obtained in advance to allow for quick yet well thought out and planned extraction. As an example, during a non-emergency operation a stockpile of oversize (rip rap) could be allowed to be left in a site rather than having it reduced in size. Again, planning and recognition of areas where emergency needs may occur, and the type of materials needed to address the emergency is necessary.

Prospective versus Mandatory: In general ODOT utilizes the “mandatory” designation only in very specific circumstances. For example, mandatory sources have been identified when there was a need to utilize a source one more time to deplete it prior to full and final reclamation. Occasionally a site has been identified as mandatory in an effort to reduce hauling vehicles on a section of road where additional hauling vehicles could potentially cause significant damage. A mandatory site could be identified if it contains a specific type of material that is unavailable elsewhere. Another example would be associated with the use of material from a construction project to reduce or eliminate excess excavation and the need for its disposal. Maintenance concerns and needs can also be a factor in determining whether or not a site should be identified as mandatory. In summary, the mandatory designation is not something that ODOT commonly uses. This designation should not be used unless there are special circumstances. By designating a mandatory site ODOT eliminates the option for a Contractor to obtain material from another site that may result in cost savings. **If the mandatory option is selected and there is any federal money being used to fund the project, a “Letter of Public Interest Finding” must be prepared for the Federal Highway Administration (FHWA) that details the benefit to the public derived by making the source mandatory and FHWA concurrence obtained in advance of letting the contract.**

ODOT normally offers prospective sources. By offering prospective sources ODOT allows all Contractors bidding the project to examine fully permitted sites and either prepare their bids based on the development plan and operating specifications, or bid based on obtaining materials elsewhere. Offering prospective sources and allowing Contractors to shop around and determine the best possible material sources for their operation should lead to better bid prices for the material, and overall project savings.

Precautions: ODOT should never allow use of one of its sites without making sure that the proposed operation is consistent with the long term development concepts for the source. No ODOT source should be utilized by anyone without having proper permits and clearances.

ODOT cannot give material away. Fair market value, rules, laws and policies related to this issue are of significant concern when use of an ODOT site is requested by others when it has not been offered to all bidders for an ODOT contract. Uses of ODOT sites by others such as county public works departments, cities or other agencies need to be thoroughly evaluated to assure that in no way does the use of the ODOT site cross over the line into competition in the private market. If in doubt, use of the ODOT site should be denied.

Source/Disposal Site Prioritization of Use Strategy:

There can be many demands for usage placed upon an ODOT source/disposal site for a variety of uses (surfacing aggregate, base aggregate, shoulder aggregate, rip rap, sanding aggregate, embankment borrow, disposal of excess material, staging) and from a variety of users (STIP projects, OTIA III Bridge projects, Maintenance projects, local agency projects, and emergency needs). With all these competing demands, there is a high likelihood that at some point in time, they may be in conflict with one another.

Numerous factors influence the availability of a site to meet any project need. The status of permits and environmental clearances will influence source availability as will the availability of accurate site topography and adequate subsurface information. The volume of material in the site as well as the quality of the material available will factor into whether or not a site fits the proposed need. Many sites within the ODOT network are small or have been poorly managed over the years and have limited space and cannot accommodate multiple operations or use for both disposal and extraction. Things as simple as the existence or location of stockpiled material can render a site unusable for other demands and can add extra costs to the project. Furthermore, for large projects, a source may be “tied up” by a single operator for a year or more. These factors coupled with ODOT’s need for available high quality materials for maintenance and construction make the wise use of ODOT material sources very important.

Prioritization of source use is a challenging yet critical element of managing the ODOT Material Source Network in Region 4. The Region 4 Material Source Management Plan identifies the Geology Unit as having the primary responsibility for material source management and, consequently, the prioritization of source use.

Whenever a source is proposed for any use, the Region Geology Unit should be consulted to assure that the proper permits and clearances are in place and to make sure that the proposed activity will not result in conflicts with permit requirements, environmental restrictions, future use and/or other source commitments. Yet when there are multiple demands placed upon a source in the same time frame or overlapping time frames, how will the Geology Unit determine which demand should be satisfied and for what purpose?

Of course good planning to anticipate current and future needs and good communication are essential to make sure that sources are available for planned and unplanned needs. In addition, Region 4 has developed a list of factors to consider and developed a consistent decision making process to provide a satisfactory resolution in the event conflicting needs arise.

General Priorities for use of a Source or Disposal Site:

Top Priority: Declared Emergencies:

- Declared emergency situations are always top priority for ODOT. If there is an ODOT controlled source/disposal site close to the site of a declared emergency, effort will be made to make the site available to provide material or to dispose of material so the highway can be quickly and safely returned to full operating capacity. Since emergencies are unplanned, yet will take priority, the needs associated with these events should be viewed as stand alone demands when evaluating prioritization of material source usage.

Prioritization of Planned or Anticipated Needs:

- Planned or Anticipated needs are related to project and routine maintenance needs. These include Region 4 STIP projects, OTIA III Bridge projects, Maintenance projects, Local Agency projects and general use of the sites for normal maintenance activities. In order to decide which of these uses should receive priority over the others in the event of a conflict several factors need to be considered.

Prioritization of Use Factors:

- the highest expected benefit or cost savings.
- haul distances from site to proposed project.
- timing of the request (to some extent, first come, first served).
- volume of material requested, and the impact of the proposed use on the life of the resource site (not utilizing a limited resource for anything that does not maximize the benefit of the resource to ODOT, like one large project versus numerous smaller projects).
- impact of committing a site to a proposed project on other demands for use of the source (if committing a source to a single large or long term project would eliminate the possibility of offering the source for several other projects, the benefit of offering the site for multiple projects should be considered carefully).

- impact of allowing a use if the source is already committed to an ongoing or upcoming project (if a site is committed to an ongoing or upcoming project, additional requests that are received will only be accommodated if their timing and use will not interfere with the prior commitment).
- requested use is maximizing the highest use of the material (utilizing AC quality rock for AC projects rather than utilizing a limited reserve for a use such as general embankment).
- impact of the proposed use on the future use of the resource site (for example, do not allow disposal of excess material or long term stockpiling of material if it will interfere with future use of the site for excavation and processing).
- impact of denying a requested use (political ramifications and cost impacts).
- options to meet the need from other sources which may be better situated or may better meet the project need (denying use of a site simply because it is inconvenient or due to poor planning or poor communication. This will interfere with maximizing the benefit of the resource).
- can projects be combined to accommodate multiple requests and eliminate a conflict (for example can a maintenance need be met by connecting it to a STIP contract)?
- can the schedule(s) of the project(s) be adjusted to allow for sequential use of the source to eliminate conflict or to avoid conflicts with seasonal restrictions?

- In the unlikely event that conflicting demands still exist after considering the above factors, the following priority should be used to determine which project needs to satisfy.

1. ODOT STIP Projects
2. ODOT Maintenance Projects & activities
3. ODOT OTIA III Bridge Projects
4. Local Agency Projects

- In most situations, through effective coordination and communication, normal maintenance activities such as small quantity removal, equipment storage, and material stockpiling and storage can be accommodated along with larger scale project contract commitments without impacting the proposed use of the site associated with the contract.