With the State of Florida’s 75 percent by the year 2020 recycling goal in place, Orange County (OC) has made the
development and implementation of an efficient strategy for landfill diversion of its solid waste a top priority. In
response to the Florida Department of Environmental Protection (FDEP) estimation (2009) that 23 percent of municipal
solid waste was generated by construction and demolition (C&D) activities with only 30 percent of C&D debris being
recycled, OC decided to create a solid waste integrated resource plan (SWIRP) initially focused on the recovery and
recycling of C&D materials (2010). For SWIRP development, OC decision makers need the best available data regarding
C&D debris generation and composition and an understanding of the potential markets available for recycled materials.

In this investigation a debris generation model was created for the largest single governing body within OC,
unincorporated OC (UOC) representing 65 percent of county population on average from 2001-2009, and was assumed
to apply to the entire county. The debris generation model was constructed for 2001-2010 using area values for C&D
activities in six sectors as obtained from building permits and debris generation multipliers obtained from literature
values. The benefit of the model is that as building permit information is updated, debris generation estimations can
also be updated expediently when debris generation multipliers are assumed to continue to apply.

Material composition fractions obtained from waste characterization studies of landfills in the Central Florida area were
applied to the debris generation model using a weighted average resulting in a material composition for all sectors from
2001-2010. The material composition of the debris stream was found to be concrete (53%) followed by drywall (20%),
wood (12%), a miscellaneous fraction (8%), asphalt roofing material (4%), metal (2%), cardboard (1%) and carpet and
padding (1%).

A market analysis was performed for concrete, drywall, wood, asphalt roofing shingles and residual screened materials
(RSM), a component of the miscellaneous fraction, which estimated potential demand for recycling C&D debris materials
by examining markets that could use recycled materials but generally use natural resources. The analysis assumed that
natural resources or other waste sources could be replaced with recycled C&D debris. In some instances the entire state
of Florida was considered as the control boundary for the potential recycling of OC’s C&D materials; however the
Central Florida area was used where local data were available. It was found that 100 percent of the materials discussed
in the market analysis could be recycled through the use of currently available end markets when statewide outlets were
considered but that the introduction of more local markets was vital to the success of OC’s high diversion goal
because of the cost to transport recyclables. Asphalt shingles were found to have a particularly high potential for use in
a locally created end market as an alternative ingredient material in hot mix asphalt (HMA) because roadwork involving
the need for HMA is pervasive throughout OC.

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The public is welcome to attend.