CLAIMS

What is claimed is:

Claim 1. A method of operating a checked bag reconciliation area, said method including:

loading a plurality of luggage items from an entrance mechanism each onto a search table of one of a plurality of automatic guided vehicles;

determining one of a plurality of security inspection stations at which to transport each of the luggage items, respectively, based on a bag ID of the luggage item, the bag ID comprising information related to at least one of: flight departure time, flight destination, and a risk based security level that corresponds with the luggage item;

transporting the plurality of luggage items each from the entrance mechanism to the determined one of the plurality of security inspection stations with the luggage disposed on the search table of the automatic guided vehicle;

conducting a security inspection of each of the luggage items at the determined security inspection station with the luggage item disposed on the search table of the automatic guided vehicle; and

wherein a transportation distance between the entrance mechanism and each of the plurality of security inspection stations is independent of conveyors.

Claim 2. A method as set forth in claim 1 further including programming the bag ID associated with each luggage item into a control system, and transmitting instructions to the automatic guided vehicles from the control system to transport the luggage items to the determined security inspection stations.

Claim 3. A method as set forth in claim 1 further including determining a secondary destination for each of the luggage items based on the inspection of the luggage item at the security inspection station, programming the secondary destination into the control system, and transmitting instructions to the automatic guided vehicle from the control system to transport the luggage item to the determined secondary destination.

Claim 4. A method as set forth in claim 3 further including transporting the luggage item to the secondary destination with the luggage item disposed on the search table of the automatic guided vehicle.

Claim 5. A method as set forth in claim 4 wherein the secondary destination is at least one of: a clear bag conveyor line, a re-inspection conveyor line, and failed bag area.

Claim 6. A method as set forth in claim 4 wherein each of the automatic guided vehicles further includes a chassis presenting a plurality of wheels for establishing movement of the automatic guided vehicle, the search table of each of the automatic guided vehicles is pivotable relative to the chassis, and wherein said method further includes unloading each of the luggage item onto a conveyor line at the secondary destination by pivoting the search table relative to the chassis to cause the luggage item to slide off of the search table onto the conveyor line.

Claim 7. A method as set forth in claim 1 wherein each of the automatic guided vehicles further includes a chassis presenting a plurality of wheels for establishing movement of the automatic guided vehicle, wherein the search table of each of the automatic guided vehicles extends along a plane in alignment with and above the chassis,

wherein the search table is moveable relative to the chassis, and said method further includes the step of moving the search table relative to the chassis in a direction perpendicular to the plane of the search table prior to conducting an inspection of the luggage item to optimize the height of the search table for the inspection station.

Claim 8. A method of operating a checked bag reconciliation area, said method including:

moving a plurality of luggage items each from an entrance mechanism to a search table of one of a plurality of automatic guided vehicles;

programming a plurality of bag IDs into a control system, wherein the bag IDs each includes information related to at least one of: flight departure time, flight destination, and a risk based security level that corresponds with the luggage item;

determining one of a plurality of security inspection stations to transport each of the luggage items based on the bag ID associated with each respective luggage item;

transmitting instructions to the automatic guided vehicles from the control system to transport the luggage items to the determined inspection stations;

transporting the luggage items to the determined security inspection stations with the luggage items each disposed on the search table of one of the automatic guided vehicles; and

conducting a security inspection of the luggage items at the determined security inspection stations with the luggage items disposed on the search table of the automatic guided vehicles;

wherein a transportation between the entrance mechanism and each of the plurality of security inspection stations is independent of conveyors to provide increased floor space within the checked bag reconciliation area.

Claim 9. A method as set forth in claim 8 further including determining a secondary destination for each of the luggage items based on the inspections of the luggage items, programming the secondary destination into the control system, and transmitting the instructions to the automatic guided vehicles from the control system to transport the luggage items to the secondary destinations.

Claim 10. A method as set forth in claim 9 further including transporting the luggage items to the secondary destinations with the luggage items disposed on the search tables of the automatic guided vehicles.

Claim 11. A method as set forth in claim 10 wherein each of the secondary destinations is at least one of: a re-inspection conveyor line, and failed bag area.

Claim 12. A method as set forth in claim 10 wherein each of the automatic guided vehicles further includes a chassis presenting a plurality of wheels for establishing movement of the automatic guided vehicle, the search table is pivotable relative to the chassis, and wherein said method further includes unloading the luggage item onto a conveyor line at the secondary destination by pivoting the search table relative to the chassis to cause the luggage item to slide off of the search table onto the conveyor line.

Claim 13. A method as set forth in claim 8 wherein each of the automatic guided vehicles further includes a chassis presenting a plurality of wheels for establishing movement of the automatic guided vehicle, the search table extends along a plane in alignment and above the chassis and is moveable relative to the chassis, and said method

further includes moving the search table relative to the chassis in a direction perpendicular to the plane of the search table prior to conducting an inspection of the luggage item to optimize the height of the search table for the inspection station.

Claim 14. A system for operating a checked bag reconciliation area, said system comprising:

an entrance mechanism wherein luggage items are received into the checked baggage reconciliation area;

a plurality of security inspection stations each spaced from the entrance mechanism;

a plurality of pathways extending between said entrance mechanism and said plurality of security inspection stations;

a plurality of automatic guided vehicles each including a chassis having a plurality of wheels for establishing movement of said automatic guided vehicle and a search table connected to said chassis for transporting the luggage items between said entrance mechanism and said security inspection stations with the luggage items disposed on said search table and for allowing the luggage items to be inspected while the luggage items are positioned on said search tables; a control system wirelessly connected to said automatic guided vehicles for controlling the movement of said automatic guided vehicles along said at least one pathway between said entrance mechanism and said plurality of security inspection stations;

a transportation between said entrance mechanism and each of said plurality of security inspection stations along said pathways is independent of conveyors to provide increased floor space within the checked bag reconciliation area.

Claim 15. A system as set forth in claim 14 wherein said search table of each of said automatic guided vehicles extends along a plane and is moveable in a direction perpendicular to said plane of said search table for adjusting the height of said search table such that it is at an optimal height for said inspection station.

Claim 16. A system as set forth in claim 15 wherein said search table is pivotally mounted on said chassis for allowing said search table to be pivoted relative to said chassis to slide the luggage items off of said search table.

Claim 17. A system as set forth in claim 14 wherein said automatic guided vehicles each further includes a proximity sensor for detecting objects proximal to said automatic guided vehicle and stopping said automatic guided vehicle in response to said detection.

Claim 18. A method of operating an activity area, said method including:

moving a plurality of luggage items each from an entrance mechanism to one of a plurality of automatic guided vehicles with the luggage item located a first location in the activity area;

providing instructions from a control system to the automatic guided vehicle to move the luggage item from the first location to one of a plurality of security inspection stations in the activity area;

transporting the luggage item from the first location to the one of a plurality of security inspection stations with the automatic guided vehicle and with the luggage item disposed on the automatic guided vehicle;

conducting a security inspection of the luggage items at the security inspection stations with the luggage items disposed on the automatic guided vehicles;

determining a secondary destination to transport each of the luggage items to based on the security inspections of the luggage items;

providing instructions from the control system to the automatic guided vehicles to move the luggage items from the security inspection stations to the determined secondary destinations; and

transporting the luggage items to the determined secondary destinations with the automatic guided vehicles with the luggage items disposed on the automatic guided vehicles;

wherein a transportation between the entrance mechanism and each of the plurality of security inspection stations is independent of conveyors to provide increased floor space within the activity area.

Claim 19. A system for operating a checked bag reconciliation area, said system comprising:

an entrance mechanism wherein a plurality of luggage items are received into the checked baggage reconciliation area;

a plurality of security inspection stations spaced from the entrance mechanism;

a plurality of automatic guided vehicles each including an inspection surface for supporting at least one of the plurality of luggage items on said inspection surface and transporting the at least one luggage item between said entrance mechanism and one of said security inspection stations with the at least one luggage item supported by said inspection surface and for allowing the at least one luggage item to be inspected while the at least one luggage items is supported by said inspection surface; and

a control system wirelessly connected to said automatic guided vehicles for automatically controlling the movement of said automatic guided vehicles;

a transportation between said entrance mechanism and each of said plurality of security inspection stations being independent of conveyors to provide increased floor space within the checked bag reconciliation area.

Claim 20. A method of operating a checked bag reconciliation area, said method including:

moving a plurality of luggage items each from an entrance mechanism to one of a plurality of automatic guided vehicles;

transmitting a plurality of first inputs to a control system, wherein each of the first inputs is related to at least one of: bag ID information related to at least one of: flight departure time, flight destination, and a risk based security level that corresponds with the luggage items or a condition in the checked bag reconciliation area;

determining one security inspection station of a plurality of security inspection stations to transport each of the luggage items to based on the first inputs;

providing instructions from the control system to the automatic guided vehicles to move from the first location to the determined security inspection stations; and

transporting each of the luggage item from the first location to the determined security inspection stations with the luggage item disposed on the automatic guided vehicles;

wherein a transportation distance between the entrance mechanism and each of the plurality of security inspection stations is independent of conveyors to provide increased floor space within the checked bag reconciliation area.

Claim 21. A method of operating a checked bag reconciliation area, said method including:

moving a plurality of luggage items each from an entrance mechanism to a search table of one of a plurality of automatic guided vehicles;

transmitting a plurality of first inputs to a control system each corresponding to one of the plurality of luggage items, wherein the first inputs each relate to at least one of: bag ID information related to the luggage item and a condition in the checked bag reconciliation area;

moving the plurality of the automatic guided vehicles with the luggage items disposed on the search tables of the automatic guided vehicles to a staging area being spaced from the entrance mechanism;

determining an inspection station at which to send each of the automatic guided vehicles based on the first inputs while the plurality of the automatic guided vehicles are positioned at the staging area;

determining an order of priority of movement of the plurality of automatic guided vehicles based on the first inputs while the plurality of automatic guided vehicles are positioned at the staging area;

providing instructions from the control system to the plurality of automatic guided vehicles to each move to the determined security inspection stations in the determined order of priority of movement, wherein the plurality of security inspection stations are spaced from the entrance mechanism and the staging area;

transporting the luggage items from the staging area to the determined security inspection stations in the determined order of priority of movement with the luggage items each disposed on one of the plurality of automatic guided vehicles; and

conducting a security inspection on each of the luggage items at the security inspection stations with the luggage items each disposed on the search table of one of the automatic guided vehicle;

wherein a transportation distance between the entrance mechanism and each of the plurality of security inspection stations is independent of conveyors to provide increased floor space within the checked bag reconciliation area.

Claim 22. A system for operating a checked bag reconciliation area, said system comprising:

an entrance mechanism wherein luggage items are received into the checked bag reconciliation area;

a plurality of security inspection stations each spaced from the entrance mechanism by a transportation distance;

a plurality of automatic guided vehicles each including an inspection surface for supporting at least one of the luggage items on said inspection surface and transporting the at least one luggage item between said entrance mechanism and said security inspection station along said transportation distance with the at least one luggage item supported by said inspection surface and for allowing the at least one luggage item to be inspected while the at least one luggage items is supported by said inspection surface;

said transportation distance between said entrance mechanism and said plurality of security inspection stations being independent of conveyors; and

a control system wirelessly connected to said material handling device for automatically controlling the movement of said automatic guided vehicles and for determining a security inspection station at which to transport each of the luggage items based on a bag ID of the luggage item, the bag ID comprising information related to at least one of: flight departure time, flight destination, and a risk based security level that corresponds with the luggage item.

Claim 23. A system for prioritizing an automated movement of a plurality of luggage items in a checked bag reconciliation area, comprising:

a data store comprising a computer readable medium storing a program of instructions for the prioritizing the automated movement;

a processor that executes the program of instructions;

a luggage information receiver configured to receive data associated with each of the plurality of luggage items;

a luggage classifier configured to correspond the received data with priority data, the priority data being assigned to each of the plurality of luggage items;

an instructions communicator configured to communicate the priority data to a system for operating the checked bag reconciliation area,

wherein the plurality of luggage items is processed via the checked bag reconciliation area in a predetermined order based on the priority data;

an entrance mechanism wherein the plurality of luggage items are received into the checked bag reconciliation area;

a plurality of automatic guided vehicles electrically connected to the instructions communicator, each for receiving at least one of the luggage items from the entrance mechanism and for carrying the at least one of the luggage items; and

a plurality of security inspection stations;

wherein instructions are transmitted from the instructions communicator to the automatic guided vehicles to transport each of the luggage items to a determined security inspection station, wherein the security inspection station is determined based on the priority data associated with each luggage item;

wherein a transportation distance between the entrance mechanism and each of the plurality of security inspection stations is independent of conveyors to provide increased floor space within the checked bag reconciliation area.

Claim 24. A method of operating a checked bag reconciliation area, said method including:

transporting a plurality of luggage items each from an entrance mechanism to one of a plurality of security inspection stations;

wherein the one of the plurality of security inspection stations is determined based on the security inspection station currently being free of automatic guided vehicles;

wherein the one of the plurality of security inspection stations is further determined based on a bag ID of the luggage item, the bag ID comprising information related to at least one of: flight departure time, flight destination, and a risk based security level that corresponds with the luggage item;

conducting an inspection of the luggage items at the determined security inspection stations; and

wherein transporting a plurality of luggage items each from an entrance mechanism to one of a plurality of security inspection stations includes transporting the luggage items to the security inspection stations with the luggage items each disposed on a search table of one of a plurality of automatic guided vehicle, and wherein conducting an inspection of the

luggage items includes conducting the inspection of the luggage items while the luggage items are disposed on the search tables of the automatic guided vehicles, and wherein the inspection is conducted independent of an agent;

wherein a transportation distance between the entrance mechanism and each of the plurality of security inspection stations is independent of conveyors to provide increased floor space within the checked bag reconciliation area.

Claim 25. A method of operating a checked bag reconciliation area as set forth in claim 1 wherein loading a plurality of luggage items from an entrance mechanism each onto a search table of one of a plurality of automatic guide vehicles includes moving the automatic guided vehicle to a position in which the automatic guided vehicle is adjacent to an end of the entrance mechanism and vertically lower than the entrance mechanism, and pushing the luggage item onto the search table.

Claim 26. A method of operating a checked bag reconciliation area as set forth in claim 25 wherein the entrance mechanism is a conveyor.

Claim 27. A method of operating a checked bag reconciliation area as set forth in claim 18 wherein said method further includes transporting the luggage item from the first location directly to the secondary destination along a bypass search segment.